KONICA MINOLTA

REGIUS MODEL 190 (DD-941)

OPERATION MANUAL

CODE NO. : 0676
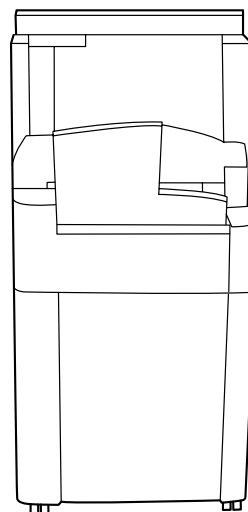
KONICA MINOLTA MEDICAL & GRAPHIC, INC.

Table of Contents

Foreword

We thank you for purchasing the "Direct Digitizer DD-941" (henceforth referred to as REGIUS MODEL 190).
The REGIUS MODEL 190 is designed to read REGIUS Plates.
The basic operational procedures for the REGIUS MODEL 190 such as start up/shut down, patient registration and parameter settings, are carried out using a REGIUS CONSOLE CS-1/CS-2/CS-3 (henceforth referred to as CS-1/CS-2/CS-3) available separately.
Before proceeding with usage of the REGIUS MODEL 190, time should be taken to fully familiarize yourself with the contents of this operation manual as well as the operation manual for the console (CS-1/CS-2/CS-3). Please note also that since safety precautions regarding handling of and operational procedures for the product are set out in this manual, the manual should at all times be kept in a readily accessible place for easy reference.

REGIUS CONSOLE CS-1
REGIUS CONSOLE CS-3
This console (controller) controls communication, processing, and output of the image data read by the REGIUS MODEL 170, 190 and/or REGIUS MODEL 350, 550.

REGIUS CONSOLE CS-2
This console (controller) controls communication, processing, and output of the image data read by the REGIUS MODEL 190.

Features

1 Realization of "Ultimate Resource Sharing Concept"
   The reader and console may be separated, allowing maximum freedom of layout.
   System architecture best suited to the number of examinations carried out or the room space available may be realized.

2 Space-saving
   The product is compact with a footprint of only 58 X 58 cm.

3 High-speed Processing
   Throughput for 14" X 14" size is approximately 90 plates/hr.

4 Comfort Operability
   Insertion and ejection slots are independent.
   Next cassette can be set in the cassette insertion slot. (+1 stack)
   Up to four processed cassettes can be stacked on the cassette stacker.

Notes

(1) Unauthorized reproduction of this manual in whole or in part is prohibited.

(2) The content of this manual is subject to change without prior notice.

(3) Should any discrepancies, errors or omissions be discovered, KONICA MINOLTA should be contacted.

(4) Notwithstanding item(3) above, KONICA MINOLTA shall accept no responsibility of any claims made against loss or loss of profits arising from use of the product.

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About this Manual

Be sure to read this section before using this manual.

How to use this manual

This manual consists of the chapters listed below.

Chapter1	**Safety Precautions & Warnings**
	This chapter details warnings and cautions for operation of the REGIUS MODEL 190.
Chapter2	**Product Outline**
	This chapter gives an outline of the REGIUS MODEL 190.
Chapter3	**Operation**
	This chapter details the procedures for operation of the REGIUS MODEL 190.
Chapter4	**Troubleshooting**
	This chapter details procedures to be followed upon occurrence of errors in the REGIUS MODEL 190.
Chapter5	**Care & Maintenance**
	This chapter details the procedures for care and maintenance of the REGIUS MODEL 190.
Specification	This chapter details the specification of the REGIUS MODEL 190.
Appendix	The messages displayed on the LCD panel are described in this chapter as an appendix.
Index	The index to this REGIUS MODEL 190 Operation Manual is described in this chapter.

Basic operation procedures are detailed in the chapters 2 and 3. Chapter 4 should be referred to for details of errors such as cassette jams.
An example page layout is explained on the next page.

Page Layout

Title
This title stands for the general meanings for the descriptions.

Hint
Points to be noted.

Reference
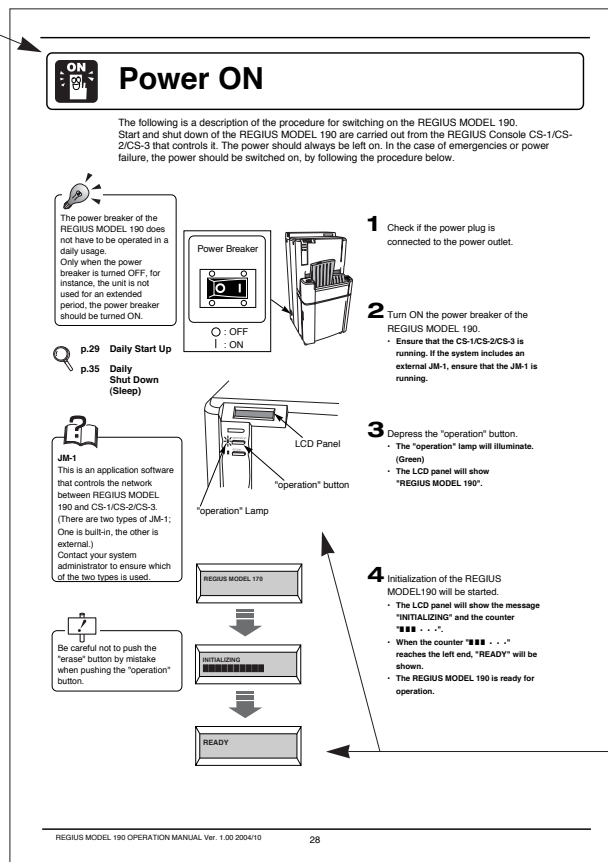Shows the reference pages or sections. See the page for more details.

Technical Term
Technical terms are explained.

Caution
Cautions for operating the machine. Details should be carefully noted.

Power ON

The following is a description of the procedure for switching on the REGIUS MODEL 190. Start and shut down of the REGIUS MODEL 190 are carried out from the REGIUS Console CS-1/CS-2/CS-3 that controls it. The power should always be left on. In the case of emergencies or power failure, the power should be switched on, by following the procedure below.

The power breaker of the REGIUS MODEL 190 does not have to be operated in a daily usage. Only when the power breaker is turned OFF, for instance, the unit is not used for an extended period, the power breaker should be turned ON.

Power Breaker

○ : OFF
I : ON

p.29 Daily Start Up
p.35 Daily Shut Down (Sleep)

JM-1
This is an application software that controls the network between REGIUS MODEL 190 and CS-1/CS-2/CS-3. (There are two types of JM-1; One is built-in, the other is external.) Contact your system administrator to ensure which of the two types is used.

Be careful not to push the "erase" button by mistake when pushing the "operation" button.

LCD Panel

"operation" button

"operation" Lamp

REGIUS MODEL 170

INITIALIZING

READY

1 Check if the power plug is connected to the power outlet.

2 Turn ON the power breaker of the REGIUS MODEL 190.
· Ensure that the CS-1/CS-2/CS-3 is running. If the system includes an external JM-1, ensure that the JM-1 is running.

3 Depress the "operation" button.
· The "operation" lamp will illuminate. (Green)
· The LCD panel will show "REGIUS MODEL 190".

4 Initialization of the REGIUS MODEL190 will be started.
· The LCD panel will show the message "INITIALIZING" and the counter "▌▌▌ · · ·".
· When the counter "▌▌▌ · · ·" reaches the left end, "READY" will be shown.
· The REGIUS MODEL 190 is ready for operation.

REGIUS MODEL 190 OPERATION MANUAL Ver. 1.00 2004/10   28

Operation Procedure
Operation procedure is explained in order.

Display or Illustration
Display or Illustration with the operational procedure is shown.

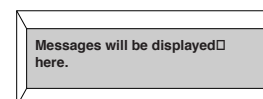
Quotation Marks, " ".

The word in quotes shows that it is displayed on the LCD panel of REGIUS MODEL190.

Ex. "READY"

LCD display in procedures

When the LCD message as shown in the right is illustrated in the procedure, it indicates that the message is actually shown on the LCD of REGIUS MODEL190 at the time of implementing the procedure.

Messages will be displayed here.

1

Safety Precautions & Warnings

When using the REGIUS MODEL 190, the cautions detailed in this chapter must be strictly followed in order to correctly use the device.

⚠️ Alert and Symbol Marks

⚠️ Safety Alert Symbol

This is the safety alert symbol and is intended to draw the attention of the user to potential dangers to the user him/herself or to others that may arise during the use or operation of this system.
These messages must be read thoroughly and strictly observed.
All safety related precautions should be carefully read and fully understood before proceeding with assembly or usage of this system.

Description of Graphic Symbols

● Symbols indicating the need for caution (including danger and warnings)

Normal caution	Danger of fire	Danger of electrocution

● Symbols indicating prohibited acts

Prohibited	Do not touch	Do not disassemble	Do not touch with wet hand	Do not expose to moisture

● Symbols indicating essential acts (compulsory or indicated acts)

Ground	Remove the plug from the power outlet

● Other Symbols

AC voltage (power supply)	Main power supply OFF	Main power supply ON	Power supply standby

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NOTE : If the contents of this page are not legible, order a new manual.

⚠ Warning Text (Signal Word)

Signal words indicate the degree of potential hazards in the product.

There are three degrees of caution labels, and each is used depending on the level of risk and damage caused by incorrect use and mishandling.

DANGER :Failure to observe the caution will produce high risk of serious or fatal injury.

WARNING :Failure to observe the caution will produce moderate risk of serious or fatal injury.

CAUTION :Failure to observe the caution will produce moderate risk of serious or fatal injury or damage to property.

		Risk of the damage	
		High	Low
Bodily injury (and damage to property)	Loss of life or serious injury (Damage is serious)	DANGER	WARNING
	Moderate damage or light injury (Damage is light)	WARNING or CAUTION	CAUTION
Damage to property only		CAUTION	

NOTE : If the contents of this page are not legible, order a new manual.

⚠ Types and Locations of Warning Labels

Warning labels on the REGIUS MODEL 190 are affixed at the locations shown below.

Do not remove these warning labels from the unit.
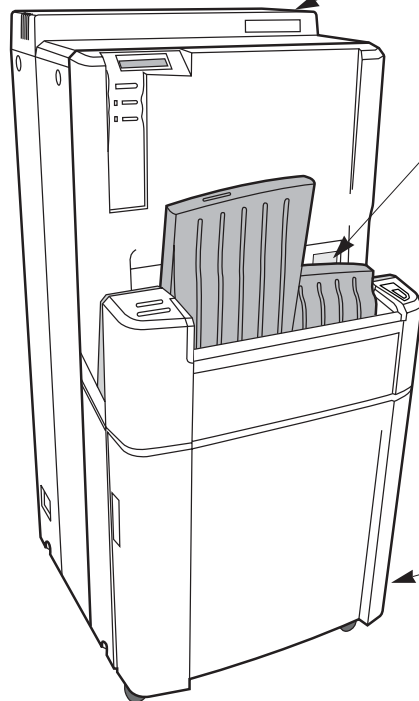
Top side

⚠ **CAUTION**

NEVER shake or move the device. Doing so may cause the monitor to drop or result in monitor damage.

Ejection Slot Shutter

⚠ **CAUTION**

NEVER insert any obstacles in the cassette eject area. Doing so may result in physical injuries or mechanical malfunction. NEVER touch the eject area until the cassette is fully ejected.

Right side

⚠ **CAUTION**

LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM.

Left/Back side

⚠ **CAUTION**

LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM.

NOTE : If the contents of this page are not legible, order a new manual.

Figure illustrating unit with front door opened
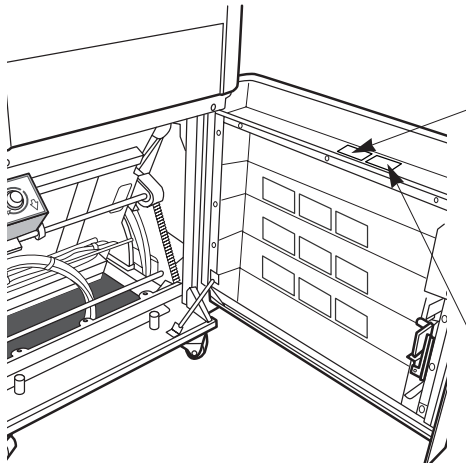
Shelf on the inside of the front door

Do not place any object on the shelf.

内部の電子部品が破損する
可能性がありますので、静
電気に注意してください。
**Be careful of static
electricity it may damage
the electronics.**
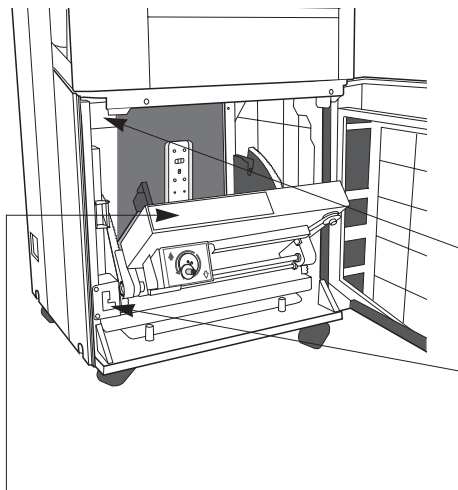
Interior of the Main Unit

⚠ **CAUTION**

60 ℃
HIGHT
TEMPERATURE
**The temperature of the elevator section
may reach 60℃. Do not touch hot surface.**

⚠ 注意
異物挿入禁止。安全
装置を作動不能にし
ないでください。
⚠**CAUTION**
Do not place or insert
any object this
safety device.

>PET<
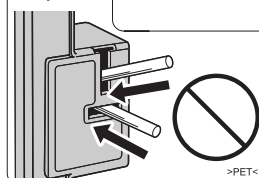
Transport Unit

⚠ **CAUTION**

170 ℃
HIGH
TEMPERATURE
**The temperature of the erase unit may
reach 170℃. Do not touch hot surface.
Wait a minimum of 20 minutes,
then perform service.**

NOTE : If the contents of this page are not legible, order a new manual.

⃠ Overall Cautions

When using the REGIUS MODEL 190, the cautions detailed below must be strictly observed and correct handling procedures followed at all times.

This operation manual should be read thoroughly in order to fully understand the REGIUS MODEL 190.

⚠ WARNING

Both lasers and high voltage are used in the REGIUS MODEL 190.
Under no circumstances should external panels be removed.
Removal of panels may result in exposure to lasers or electrocution.
Specification of laser unit in the REGIUS MODEL 190:

    Class   : IIIb
    Medium   : Semi-conductor laser
    Wavelength   : 660nm
    Maximum Output : 80mW (CW)

● **The unit must not be used if smoke, unusual odors or sounds are detected.**
In the event of detection of smoke, unusual odors or sounds, the power should be switched off immediately and the power plug disconnected from the power outlet. Then contact your Technical Representative. Continued use under such circumstances may result in fire.

● **Do not insert wire or metal blades.**
Do not insert wire, metal blades or other foreign objects into the exhaust outlet; there is a danger of electrocution.

● **Be certain to comply with any and all laws and government regulations including electric codes and utility regulations, regarding the installation and operation of this equipment.**

⚠ CAUTION

● **Do not introduce water or other foreign objects into the unit.**
Do not introduce foreign objects such as water or other liquids, pins or clips into the unit: fire, electrocution or damage may result. In the event of accidental introduction of such foreign objects or substances into the unit, the power should be switched off immediately and the power plug disconnected from the power outlet. No attempts should be made to disassemble the unit. Then contact your Technical Representative.

⚠ CAUTION

Cautions when disposing of the product
When disposing of the following used parts, accept the regulations of each local government.

1) REGIUS MODEL 190 main body and components
2) REGIUS MODEL 190 packing materials
3) REGIUS MODEL 190 accessories, and their packing materials.
4) REGIUS Cassette/Exposure-Only Cassette
5) Used photosensitive materials (dry film, etc.)
6) Special Note : Fluorescent medium is used on the REGIUS Plate. Lead foil is used on the REGIUS Plate except for those used for mammography and examination of long object.

NOTE : If the contents of this page are not legible, order a new manual.

Cautions Relating to the Power Supply and the Power Cable

⚠ WARNING

- **Never hold the power plug with wet hands.**
  Never plug in or remove the power plug from the power socket with wet hands: there is a risk of electrocution.
- **Do not connect the ground to gas pipes.**
  Under no circumstances should the ground be connected to a gas pipe: this could cause a gas explosion.
- **The following points should be strictly observed in order to avoid the risk of electrocution or fire.**
  Ensure that the unit is not exposed to water or other liquids. Make sure also that clips, pins or other foreign objects are not accidentally introduced into the main unit: this could lead to electrocution or fire.
  - **Always use the power cable provided with the unit.**
  - **Always use a recommended power outlet as the power supply.**
  - **Be careful to ensure that no dirt or dust accumulates on the power plug or power plug pins.**
  - **In the event that the power plug or power cable becomes hot, or if the plug is loose when connected to the power outlet, usage should be discontinued immediately and your Technical Representative contacted.**

⚠ CAUTION

- **Do not use any power outlet other than the type specified.**
  Always use a wall outlet meeting the specified voltage and power supply requirements. Usage of power outlets other than the type specified could result in fire or electrical leak. Additionally, do not use the unit in a location where an extension cable will be necessary.
- **Do not use multiple outlet extension plugs.**
  Excessive current loaded on the power outlet could result in overheating and consequent risk of fire.
- **Do not use cables other than the power cable supplied with the unit.**
  Supply of current in excess of the ratings to the power cable could produce the risk of fire. Additionally, in order to avoid the risk of electrocution or fire due to damage to the power cable, the following cautions should be strictly observed:
  - **Do not tug on the power cable.**
  - **Do not twist the power cable.**
  - **Do not bundle power cables.**
  - **Do not fix the power cable in place using, for example, a stapler.**
  - **Do not allow the power cable to become trapped between two objects.**
  - **Do not place objects on the power cable.**
  - **Do not carry out modifications, repairs or other processes on the power cable.**
  - **Do not use a damaged power cable.**
  A damaged power cable should be immediately replaced by a power cable of identical standard. For details of replacement, contact your Technical Representative.
- **The power cable should not be used near any heat generating devices.**
- **When the unit is to be left unoperated for extended periods of time, the power plug should be disconnected from the power outlet.**

NOTE : If the contents of this page are not legible, order a new manual.

Cautions for Installation, Movement, Maintenance and Connection of the Unit

⚠ CAUTION

● **The person in charge of the system installation has to ensure that all connecting devices comply with IEC 60601-1 as part of a Medical System.**

● **Cautions Relating to Installation of the Unit**
When installing the REGIUS MODEL 190, be sure to fix the adjuster foot firmly in place. Any vibration or shock that causes the main body of the unit to move could cause damage to the unit itself or peripheral devices or objects.

● **Cautions Relating to Movement of the Unit**
Should the necessity to move the unit arise, contact your Technical Representative.

● **Do not install the unit in any location other than the one specified.**
The unit should not be set up or installed in any of the locations detailed below, or in any location not specified in this manual.
  · **Locations where the unit will be exposed to excessive amounts of dust.**
  · **Locations where the unit will be exposed to direct sunlight.**
  · **Locations, such as near a hot water outlet, where the unit will be exposed to excessive levels of humidity.**
  · **Locations that are not level.**
  · **Locations with poor air circulation, or where sufficient ventilation cannot be ensured.**
  · **Locations where the unit will be exposed to soot or steam.**
  · **Locations where the unit will be exposed to extreme contrasts between light and darkness.**
  · **Locations where the unit will be exposed to heat, such as near a heater.**
  · **Locations within the vicinity of the patient which encloses a space within the room 1.83m beyond the perimeter of the bed.**

● **Do not use an Ethernet cable other than the one specified.**
The ethernet cable supplied with the unit or, alternatively, an ethernet cable specified by Konica Minolta Medical & Graphic, inc., should be used; all devices and connectors used with the cable should be carefully checked before proceeding with connection. Regarding handling and connection of the ethernet cable, the following cautions should be strictly observed.
  · **Do not use damaged cable connectors.**
  · **Do not place objects on the cable.**
  · **Do not use a damaged cable.**
  · **Do not tread on the cable.**
  · **Do not use the cable if the connection is loose.**

● **Do not move the unit with power cables or other cables still connected.**
Cables will be pulled tight resulting in dropping or tilting of the unit and consequent injury.

⚠ **Be certain to comply with any and all laws and government regulations including electric codes and utility regulations, regarding the installation and operation of this equipment.**

NOTE : If the contents of this page are not legible, order a new manual.

⚠ Cautions to be Observed During Usage

⚠ WARNING

● **Do not touch the unit when thunder is heard.**
In the event of a thunderstorm, the power plug should be immediately disconnected from the power outlet. Additionally, if thunder is heard while the power cable is still connected, do not touch either the unit itself or any of the cables: doing so may result in electrocution.

⚠ CAUTION

● **Be careful to avoid fingers or hair being pulled into the unit.**
Be sure to keep hands and hair a safe distance from the exhaust outlets when the unit is in operation: there is risk of of hands or hair becoming trapped or being pulled into the unit.

● **Do not place any objects on top of the REGIUS MODEL190 other than the CS-1/CS-2/CS-3 Operation Unit, keyboard and mouse.**
There is a risk of any objects placed on top of the unit toppling and causing damage.

● **Do not use mobile phones or pocket pagers in the vicinity of the REGIUS MODEL 190.**
Use of mobile phones or pocket pagers near the REGIUS MODEL 190 can cause errors in operation due to electromagnetic wave interference: such devices should be switched off in the vicinity of the unit.

● **Do not use the unit if damaged.**
If the REGIUS MODEL 190 is damaged, contact your Technical Representative.

● **Do not use the unit if the slits at back of the unit become blocked.**
Do not use the unit if the exhaust outlets become blocked, or with the cover on. Heat may accumulate inside the unit, which could cause damage to the unit.

● **Do not insert foreign objects into the cassette ejection unit.**
There is the space between the eject roller and unit. Do not insert cassettes or other foreign objects into this space.

● **Do not use the unit on its back, tilted or upside down.**
Doing so will result in overheating or fire.

NOTE : If the contents of this page are not legible, order a new manual.

Cautions Regarding Care and Maintenance of the Unit

⚠ WARNING

● **Do not attempt to disassemble or to carry out repairs or modification to the unit.**
Under no circumstances should the user attempt to disassemble or to carry out any repairs or modifications to the unit. Any attempts to do so may result in malfunctioning of the unit and produce the risk of electrocution or fire. Should repairs become necessary,contact your Technical Representative.

● **Do not remove the lithium batteries.**
The REGIUS MODEL 190 incorporates a lithium battery which the user should not attempt to remove. Lithium batteries may explode if exposed to fire or water. Additionally, if the unit begins to malfunction due to expiry of the life of the lithium battery, under no circumstances should the user attempt to disassemble, change or recharge the battery him/herself: contact your Technical Representative.

● **Do not handle the unit with the power plug connected to the power outlet.**
Maintenance procedures should only be carried out after the power has been switched off and the power plug disconnected from the power outlet. For example, even with the power broken off, contact with internal components may still result in electrocution if the power cable has not been disconnected from the power outlet. Additionally, the power plug should be occasionally disconnected and any dust or dirt removed using a dry cloth. If dust and dirt are allowed to accumulate on the power plug, even a drop of water may result in overheating and consequent fire.

⚠ CAUTION

● **Cables should be connected properly.**
Be sure to connect the power and Ethernet cables properly. inappropriate wiring may result in poor connection producing overheating and the consequent risk of smoke or fire.

● **Cleaning should be carried out in accordance with information set out in sections on "Care & Maintenance".**
　• Cleaning must be carried out according to the procedures described in this manual. Otherwise it may lead to injury or damage to the device.
　• The REGIUS MODEL 190 must be checked periodically in order to ensure safety during usage.
　• The REGIUS MODEL 190 must be checked for malfunction when operation is resumed after an extended period of idleness.

NOTE : If the contents of this page are not legible, order a new manual.

⚠ Cautions Relating to Handling and Storing Cassettes

⚠ WARNING

Cautions relating to the fluorescent medium of the REGIUS Plate.
When the REGIUS Plate is damaged causing the fluorescent substance to be exposed to the open air, following cautions should be noted.

🚫

● **Do not attempt to disassemble the REGIUS plate.**
Touching or swallowing the fluorescent medium is dangerous.

⚠

● **If the eye is contaminated, avoid rubbing; quickly rinse the eye with water.**
Rubbing the eye may cause injury to the eye.

● **Should the fluorescent medium is swallowed or contacted with the eye, a doctor should be consulted after carrying out the emergency measures.**

● **If the medium comes into contact with the skin, wash the affected area thoroughly with water.**

● **Use and store in a location inaccessible to children.**

⚠ CAUTION

Cautions relating to the storage of the Cassette.

⚠

● **Cassettes should be stored in a location where the temperature is 10~30°C/ humidity 80%RH or less and where they will not be exposed to high temperatures, high levels of humidity, direct sunlight or any kind or radiation.**

● **Cassettes should always be stored in an upright position.**

🚫

● **Storing cassettes flat may lead to deforming.**

● **Do not apply force to the cassette.**

● **Back and front panels should not be stored separately.**

● **Whether cassettes are stored individually or in boxes, they should not be stored flat on top of the other.**

⚠ CAUTION

🚫

● **Use of faulty products is prohibited.**
Use of products from which fluorescent medium is leaking due to a fault, or to peeling of part or the whole of the protective cover must be immediately discontinued.

NOTE : If the contents of this page are not legible, order a new manual.

⚠ CAUTION

Cautions relating to Usage of the Cassette

🚫 ● **To prevent possible injury, be careful not to drop the cassette during usage. Dropping the cassette on the foot may cause injury.**

⚠ ● **Be careful not to pinch your fingers when opening/closing the cassette lid.**

● **Because the magnet is used for the back plate of the read-only cassette, do not bring the read-only cassette close to the person wearing a pacemaker or to the other electronic devices.**

🚫 ● **Cassettes should not be used in a location where they will not be exposed to high temperatures, high levels of humidity, direct sunlight or radiation.**

● **Cassettes should be used under the conditions: 10~30:, 80%RH or less.**

● **Use only those exposure-only cassettes, read-only cassettes and REGIUS Plates that are specified by KonicaMinolta and do not use them for other purpose than specified.**

🚫 ● **To prevent possible injury, make sure that the exposure-only cassette lid is locked when it is carried to the other place.**

● **Loading of the exposed REGIUS Plate in the read-only cassette should always be carried out in a darkroom. Use a blue safelight when it is necessary. Loading the exposed REGIUS Plate under daylight leads to deterioration of image recorded on the REGIUS Plate.**

🚫 ● **Make sure that the lock is engaged when inserting the read-only cassette into the REGIUS MODEL 190.**

● **Be careful to ensure that the iron foil on the back panel does not become soiled. Also, do not affix any labels to the back panel: if it is necessary to affix a label, the label should not be affixed to the iron foil portion. Be sure to peel it off before inserting the cassette into the reader.**

🚫 ● **Peeling or curling of the sheet laminated on the cassette's back plate may lead to injury at the edge of the sheet depending on handling. If peeling or curling of the sheet is observed, immediately stop using the cassette and contact your technical representative for repair.**

● **Be careful that no foreign objects such as liquid (water, etc.), pins or clips fall into cassette.**

● **Dropping, bending or applying a shock to the cassette or REGIUS Plate may lead to deformation or breakage. Always handle them with care.**

● **Do not leave the REGIUS Plate under the fluorescent lamp or sunlight for an extended period of time.**

● **Be careful not to damage or soil the fluorescent surface of the REGIUS Plate or inner parts of the exposure-only cassette.**

● **Never attempt to disassemble, repair or modify the cassette. This may cause deterioration of the image quality as well as problems in examination using the exposure-only cassette. Contact your technical representative when a repair should be required.**

⚠ ● **Anhydrous ethanol is a chemical agent. Be sure to comply with safety regulations of the chemical manufacturer.**

● **Lead is used inner surface of the exposure-only cassette. Due care should be taken when it is handled.**

NOTE : If the contents of this page are not legible, order a new manual.

2

Product Outline

This chapter details an outline of the REGIUS MODEL 190.

Name of Parts

Part names and corresponding functions are detailed below.

Front Side

"operation" Button

Depressing this button turns the unit ON or OFF. Depressing the button ON will start initialization of the unit.

Initialization
REGIUS MODEL 190 will run diagnostic checks on itself during initializing in order to ready normal operating conditions.

"operation" Lamp (Green)

This indicator illuminates when the unit is switched on.

"erase" Lamp (Orange)

This indicator illuminates during erasing operation

p.36 Erasing the REGIUS Plate

"erase" Button (Yellow)

Depressing this button results in erasure of the image data from the REGIUS Plate.

p.36 Erasing the REGIUS Plate

Cassette Stacker

Cassette are stacked after completion of REGIUS Plate erasure after reading.

Power Breaker

This switch is used to switch power to the REGIUS MODEL 190 ON/OFF.

The maximum capacity of the cassette stacker is four cassettes. Please note that the unit is designed so that insertion of further cassettes is inhibited when the cassette stacker is full.

```
BUSY
REMOVE CST FRM EXIT
```

LCD Panel

Errors and operational status are displayed on the LCD panel.

LCD
Liquid Crystal Display

Cassette Ejection Lamp

This indicator flashes (orange) when a cassette is ejected.

Ejection Slot Shutter

This shutter opens/shuts when the cassettes are ejected.

Cassette Insertion Slot

Cassettes are inserted into this slot.

p.34 Inserting/ Reading/Ejecting the Cassettes

Front Door

This cover may be opened in the event of a cassette jam.

p.48 Handling Cassette Jams

READY Lamp

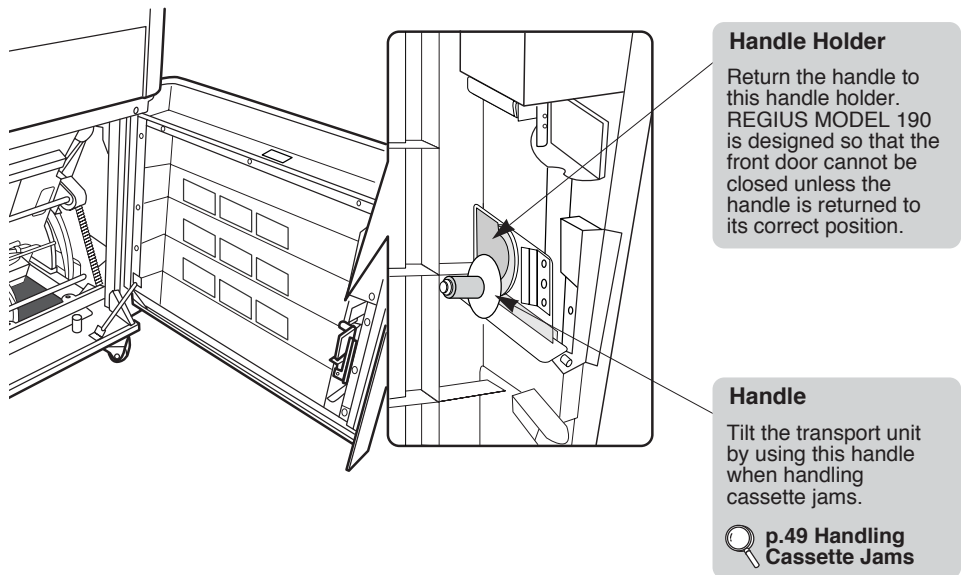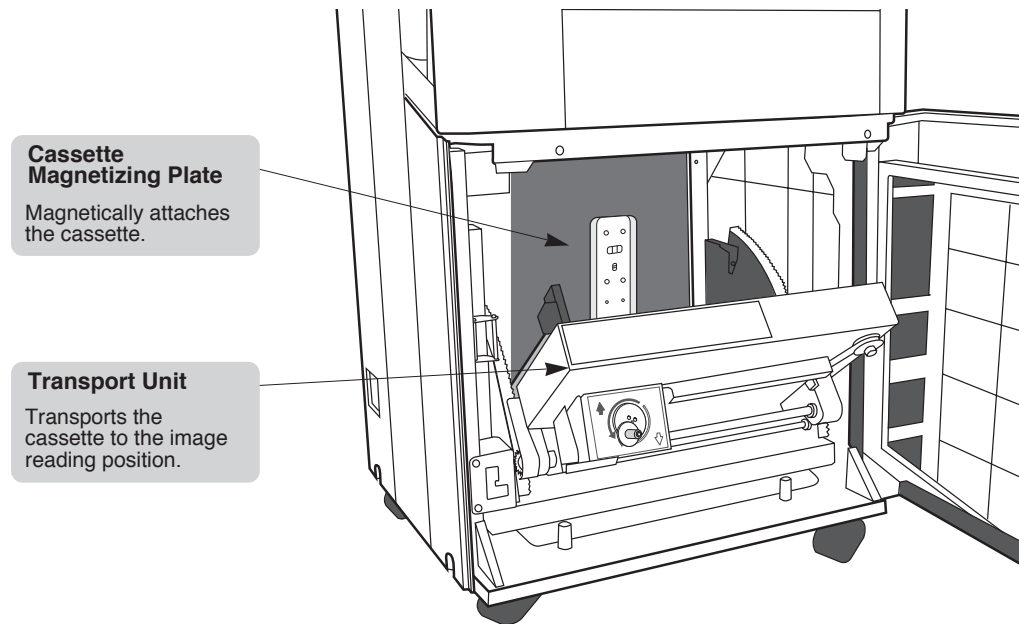This indicator illuminates when the system is in ready status.(Blue)

"eject" Button

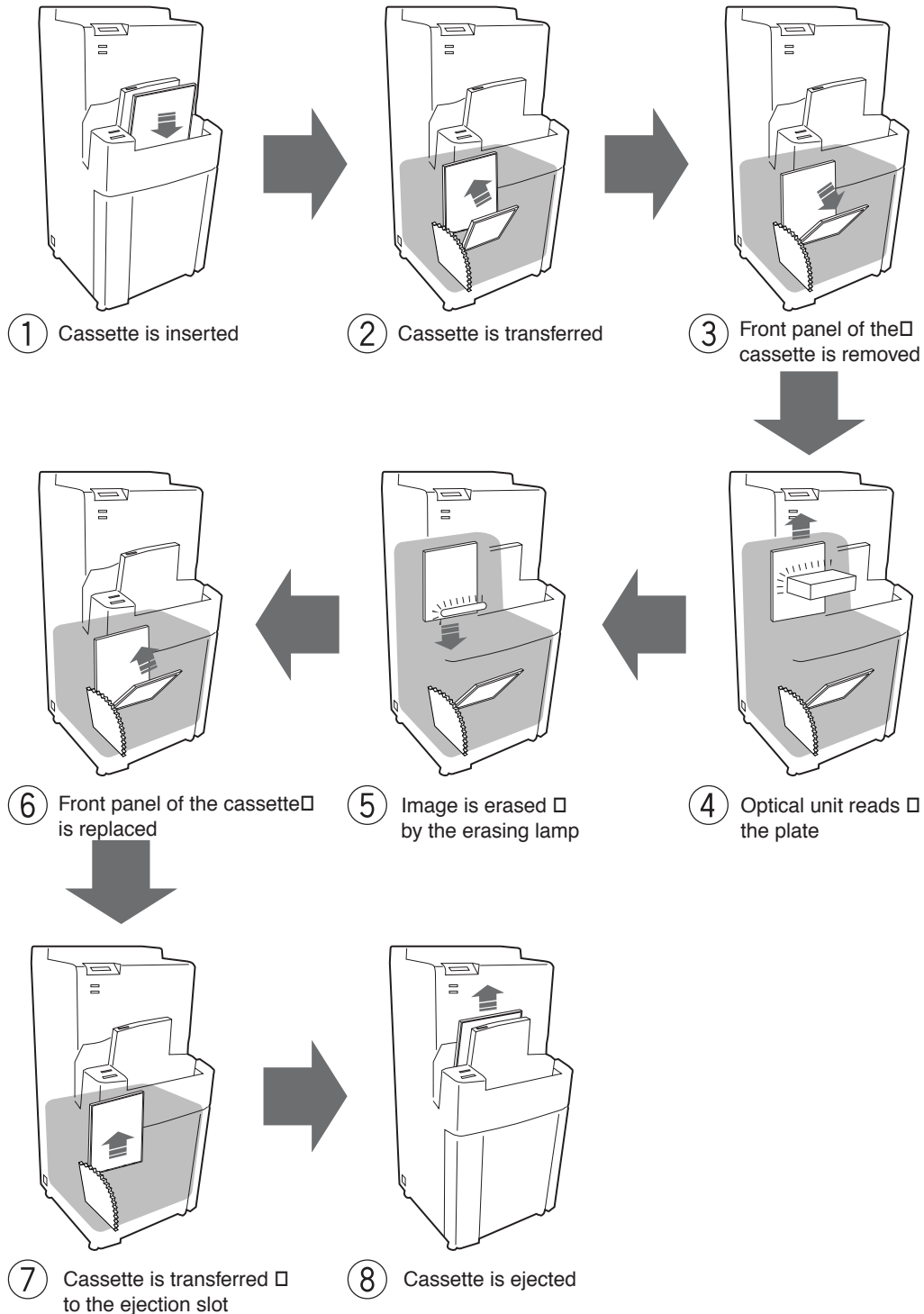Depression of this switch results in ejection of the cassette form the cassette insertion slot.

Switching power to the REGIUS MODEL 190 ON/OFF should be carried out following the procedures detailed in "Power ON" and "Power OFF".
Shutting down the system in the incorrect sequence may result in loss of data or damage to the system itself.

p. 31 Power ON
p. 41 Power OFF

Rear Side

Exhaust Outlet

To prevent temperature increase inside the device, cleaning should be carried out regularly following procedures described in Chapter. 5 "Care & Maintenance."

🔍 **p. 57**
Care&Maintenance

Ethernet Port

Insert the Ethernet cable into this port to connect the reader to the CS-1/CS-2/CS-3 or network.

Blocking the exhaust outlet will cause increase in the temperature inside the device and consequent damage.

AC Inlet

Insert the power cable here.

Cassette Magnetizing Plate

Magnetically attaches the cassette.

Transport Unit

Transports the cassette to the image reading position.

Handle Holder

Return the handle to this handle holder. REGIUS MODEL 190 is designed so that the front door cannot be closed unless the handle is returned to its correct position.

Handle

Tilt the transport unit by using this handle when handling cassette jams.

p.49 Handling Cassette Jams

Operation Flow

The sequence of transportation of the cassette within the REGIUS MODEL 190 is shown below.

① Cassette is inserted

② Cassette is transferred

③ Front panel of the cassette is removed

⑥ Front panel of the cassette is replaced

⑤ Image is erased by the erasing lamp

④ Optical unit reads the plate

⑦ Cassette is transferred to the ejection slot

⑧ Cassette is ejected

3 Operation

This chapter details the procedure for operation of the REGIUS MODEL 190.

Handling the Cassette

The following is a description for handling the cassette.
Before handling the cassette, "Cautions Relating to Handling and Storing Cassettes" detailed on p.17 should be thoroughly read and precautions detailed therein carefully followed.

Name of Parts

Size Classification Seal
The size of the cassette is shown.

Iron foil
This is the iron foil that ensures adherence to the elevator units (cassette magnetizing plate) within the REGIUS MODEL 190.

Notch
This is the notch that locks the back and front panel. Each time the open/close lock is pushed, this notch will be locked/unlocked.
The number of notches varies depending on the cassette size.

Back Panel of the Cassette
The REGIUS Plate should be adhered to the inner surface of the back panel.

CE Label

Memo Clip
A memo detailing the patient's name and other data can be affixed using this clip.

MEMO

Bar Code Label
This label carries data such as the cassette type and REGIUS Plate version.

Peeling of or damage to the bar code label may result in failure to read; care should be exercised when handling.

Open/Close Lock

⊡ Unlock
⇕
⊡ Lock

Push this lock to open the cassette when cleaning the REGIUS Plate. The lock will be locked/unlocked each time it is pushed.

Ensure that the open/close lock is in engaged when inserting the cassette.

The image area is not guaranteed within 5 mm from the inner edge of the aluminum frame plate.

Do not insert the cassette into the REGIUS MODEL 190 with any seal or memo on the back panel.

Front Panel of the cassette

Aluminum frame plate

Corner Block (4 pcs)

Carbon plate

Using the cassette with the sheet on the cassette back plate partially peeled off or detached may cause injury when touching the sheet edge. Should such defect be noted, immediately stop using and ask your technical representative to correct the defect.

Cassette Structure

REGIUS Plate
Records the X-ray image.

When reversed

Back Panel of Cassette

REGIUS Plate
A REGIUS Plate (photo-stimulable fluorescent plate) is mounted in the cassette to record the X-ray image. This REGIUS Plate is designed to be reusable.

Front Panel of Cassette
Protects the REGIUS Plate.

Cassette Types

Cassette types may be selected depending on the part of the body exposed and purpose.
(Refer to the table below)

Cassette Size

	Nominal Plate Size	Dimensions(w x h)(mm)	Thickness(mm)	Notches
	14" X 17"	384 X 460	14	12
	14" X 14"	384 X 384	14	12
	11" X 14"	308 X 384	14	10
	10" X 12"	282 X 333	14	6
	8" X 10"	231 X 282	14	6
∗	24 X 30 cm (Mammo)	328 X 255	14	4
	15 X 30cm (Pantomo)	328 X 178	14	6
	18 X 24 cm	208 X 268	14	6
∗	18 X 24 cm (Mammo)	195 X 268	14	4
	24 X 30 cm	268 X 328	14	6

∗ **: except the USA**

p.36 **Erasing the REGIUS Plate**

p.26 **Name of Parts**
p.27 **Cassette Structure**

Usage of the Exposure-Only Cassette (images for the radiotherapy localization)

Procedures ("Loading the plate in the read-only cassette" -> "Exposure" -> "Loading the plate in the system cassette") to record the exposed image data are described below.
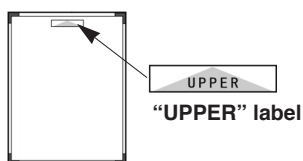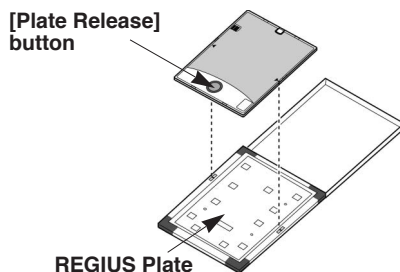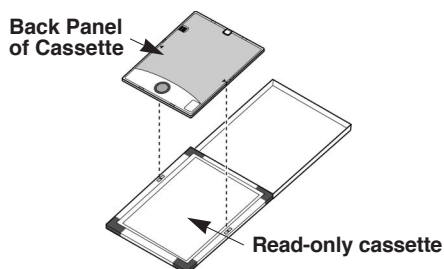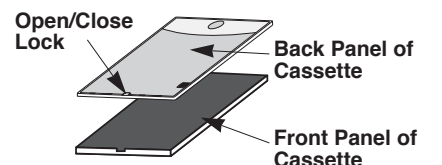
Open/Close Lock

Back Panel of Cassette

Front Panel of Cassette

Back Panel of Cassette

Read-only cassette

[Plate Release] button

REGIUS Plate

UPPER

"UPPER" label

1 Erase the images on the REGIUS Plate of the read-only cassette before exposure.

2 Disengage the open/close lock of the read-only cassette, and separate the front plate from the back plate on which the REGIUS Plate is attached.

3 Align the register mark of the back plate to that of the read-only cassette, and set the back plate in the read-only cassette.

4 Lift the back plate while pressing the [Plate Release] button to release the REGIUS Plate, and set the REGIUS Plate in the exposure-only cassette.

5 Close the exposure-only cassette's lid, and make sure the lock is engaged.

6 Implement an exposure so that the frame on which "UPPER" label is affixed comes to the top of the image.

7 After the exposure is completed, open the lid of the exposure-only cassette in the dark room. Set the back plate of the read-only cassette with its register mark aligned to the register mark of the exposure-only cassette. Pull out the REGIUS Plate by making the REGIUS Plate stick together with the back plate.

8 Couple the front and back plates of the read-only cassette, and make sure the lock is engaged.

9 Insert the read-only cassette into the REGIUS MODEL 190 to read the image data.

Usage of the Exposure-Only Cassette
(for long object images)

Procedures ("Loading the plate in the read-only cassette" -> "Exposure" -> "Loading the plate in the system cassette") to record the long object image data are described below.

Confirm that the exposure will be made for long object purpose before implementing the procedures on the left using the read-only cassettes.

1 Erase the images on the REGIUS Plate of the read-only cassette before exposure.

p.36 **Erasing the REGIUS Plate**

Open/Close Lock

Back Panel of Cassette

Front Panel of Cassette

2 Disengage the open/close lock of the read-only cassette, and separate the front plate from the back plate on which the REGIUS Plate is attached.

p.26 **Name of Parts**
p.27 **Cassette Structure**

Read-only cassette

3 Holding the back plate with the REGIUS Plate toward the frame with notches, align the register mark of the back plate to that of the read-only cassette, and set the back plate in the read-only cassette.

When loading the REGIUS Plate, set the concave edge first, then other edges.

[Plate Release] button

4 Lift the back plate while pressing the [Plate Release] button to release the REGIUS Plate, and set the REGIUS Plate in the exposure-only cassette.

When setting the back plates on the exposure-only cassette, make sure that orientation of all cassettes are the same ([Plate Release] buttons are facing the same direction)

5 Close the exposure-only cassette's lid, and make sure the lock is engaged.

REGIUS Plate

6 Implement an exposure so that the frame on which "UPPER" label is affixed comes to the top of the image.

UPPER   **"UPPER" label**

7 After the exposure is completed, open the lid of the exposure-only cassette in the dark room. Set the back plate of the read-only cassette with its register mark aligned to the register mark of the exposure-only cassette in which the REGIUS Plate has been originally set. Pull out the REGIUS Plates by making the REGIUS Plate stick together with its original back plate.

Loading of the REGIUS Plate in the read-only cassette should always be carried out in dark room.

8 Couple the front and back plates of the read-only cassette, and make sure the lock is engaged.

9 Insert the read-only cassette into the REGIUS MODEL 190 to read the image data.

Care and Maintenance of
the Exposure-Only Cassette

To use the exposure-only cassette always in optimum condition, carry regular checks every week.

Maintenance Task	Works
Checking the surface grime and Cleaning	Clean the surface with lint-free cloth dampened in anhydrous ethanol.
Checking the external damage (open/close lock, corner block and deformation of the frames of the exposure-only cassette)	If the damage is serious, stop using the damage cassette and replace with a new one.
Checking the warp of the cassette (back plate, front plate)	If the warp is strong, stop using the damage cassette and replace with a new one.

Action to be taken when the
Exposure-Only Cassette is damaged

● If the surface of the REGIUS Plate is seriously scratched, the protection sheet for the fluorescent medium of the REGIUS Plate is scratched or torn, immediately stop using and replace with a new one.

● If the exposure-only is deformed due to dropping, etc., it may cause trouble to the exposed images. Immediately stop using and replace with a new one.

● When any artifact is found on the exposed image, check that scratches, dusts or foreign substances are present on the surface of the REGIUS Plate. Carry out cleaning of the plate. Make a test exposure after the cleaning, and check that the problem has been solved. If the problem still resides causing difficulty in medical diagnosis, stop using and replace with a new one.

Power ON

The following is a description of the procedure for switching on the REGIUS MODEL 190.
Start and shut down of the REGIUS MODEL 190 are carried out from the REGIUS Console CS-1/CS-2/CS-3 that controls it. The power should always be left on. In the case of emergencies or power failure, the power should be switched on, by following the procedure below.

1 Check if the power plug is connected to the power outlet.

Power Breaker

○ : OFF
│ : ON
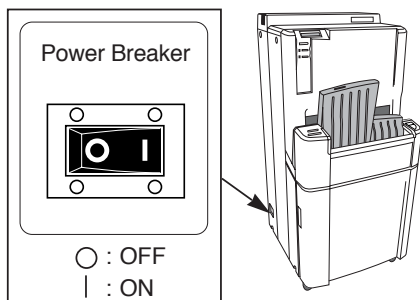
2 Turn ON the power breaker of the REGIUS MODEL 190.

The power breaker of the REGIUS MODEL 190 does not have to be operated in a daily usage.
Only when the power breaker is turned OFF, for instance, the unit is not used for an extended period, the power breaker should be turned ON.

p.32, 33　**Daily Start Up**
p.38, 40　**Daily Shut Down (Sleep)**
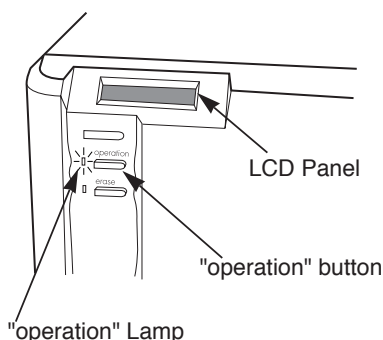
3 Ensure that the CS-1/CS-2/CS-3 is running. If the system includes an external JM, ensure that the JM is running. Depress the "operation" button.
　・ **The "operation" lamp will illuminate. (Green)**
　・ **The LCD panel will show "REGIUS MODEL 190".**

LCD Panel

"operation" button

"operation" Lamp

JM
This is an application software that controls the network between REGIUS MODEL 190 and CS-1/CS-2/CS-3.
(There are two types of JM; One is built-in, the other is external.)
Contact your system administrator to ensure which of the two types is used.

REGIUS MODEL 190

INITIALIZING

READY

4 Initialization of the REGIUS MODEL190 will be started.
　・ **The LCD panel will show the message "INITIALIZING" and the counter "■■■ ・ ・ ・".**
　・ **When the counter "■■■ ・ ・ ・" reaches the left end, "READY" will be shown.**
　・ **The REGIUS MODEL 190 is ready for operation.**
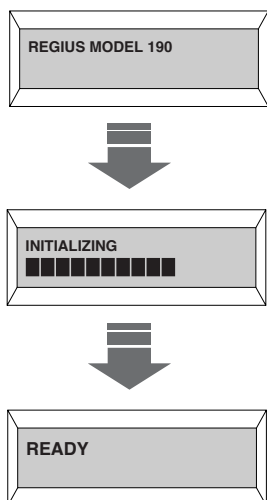
Be careful not to push the "erase" button by mistake when pushing the "operation" button.

Daily Start Up (When connected to CS-1 or CS-3)

The REGIUS MODEL 190 starts automatically upon start up of the CS-1/CS-3.The following is a description of the procedure for start up of the REGIUS MODEL 190 while it is on sleep mode. For further details, refer to the CS-1/CS-3 Operation Manual.

Sleep Mode
This means that the powering on and off of the REGIUS MODEL 190 is controlled through a CS-1/CS-3. When the REGIUS MODEL 190 is in this mode, it will start up automatically when the CS-1 /CS-3 starts up.

Sleep Mode Status
  "operation" Lamp : ON (green)
  LCD Panel   : OFF

  Power OFF Status
  "operation" Lamp : OFF
  LCD Panel   : OFF

CS-1/CS-3 software version will be shown on the start up screen when starting up the system.

1 Before switching the power,ensure that the REGIUS MODEL 190, CS-1or CS-3 and JM or JM-Box are correctly connected and that the power button of JM or JM-Box is turned ON.

2 Turn on the standby button on the CS-1 or CS-3 operation unit.
- **Power lamp will change from orange to green.**

3 Open the front door by slightly depressing the lower right edge (When the console is CS-1).

4 Turn ON the standby button located on the front of the main unit of the CS-1/CS-3.
- **CS-1/CS-3 and OS (Operating System) startup messages will be displayed successively on the LCD.**
- **After short time, the system startup screen will be displayed on the CS-1 operation unit. This display indicates that internal system initialization is being carried out.**
- **Upon completion of initialization, the initial screen (Examination List screen or Examination Search screen) will be displayed on the CS-1 operation unit, indicating that the system is ready for operation.**
- **The REGIUS MODEL 190 will recover from the sleep mode.**

(During this process, the LCD on the REGIUS MODEL 190 will show "INITIALIZING..." followed, upon completion of initialization, by "READY", and the READY lamp will illuminate.)

CS-3/CS-1 Start up Screen

Examination Search Screen   Examination List Screen

There are two types of display shown on the CS-1/CS-3 initial screen; these are the examination search screen and the examination list screen. Which of the two will be displayed can be selected in the System Menu.

Daily Start Up (When connected to CS-2)

The REGIUS MODEL 190 starts automatically upon start up of the CS-2.The following is a description of the procedure for start up of the REGIUS MODEL 190 while it is on sleep mode. For further details, refer to the CS-2 Operation Manual.

1 Before switching the power,ensure that the REGIUS MODEL 190, CS-2 and JM are correctly connected and that the power button of JM is turned ON.

2 Turn on the standby button on the CS-2 operation unit.

Sleep Mode
This means that the powering on and off of the REGIUS MODEL 190 is controlled through a CS-2.
When the REGIUS MODEL 190 is in this mode, it will start up automatically when the CS-2 starts up.

3 Turn ON the power button located on the front of the main unit of the CS-2.

・ **CS-2 and OS (Operating System) startup messages will be displayed successively on the LCD.**
・ **After short time, the system startup screen will be displayed on the CS-2 operation unit. This display indicates that internal system initialization is being carried out.**
・ **Upon completion of initialization, the initial screen (Image Confirm screen, Examination List screen or Examination Search screen) will be displayed on the CS-2 operation unit, indicating that the system is ready for operation.**
・ **The REGIUS MODEL 190 will recover from the sleep mode.**

(During this process, the LCD on the REGIUS MODEL 190 will show "INITIALIZING..." followed, upon completion of initialization, by "READY", and the READY lamp will illuminate.)

Sleep Mode Status
  "operation" Lamp : ON
  (green)
  LCD Panel   : OFF

  Power OFF Status
  "operation" Lamp : OFF
  LCD Panel   : OFF

CS-2 Start up Screen

CS-2 software version will be shown on the start up screen when starting up the system.

There are three types of display shown on the CS-2 initial screen; these are the image cofirm screen, examination input screen and the examination list screen. Which of the two will be displayed is determined in advance depending on the CS-2 configuration.

Image Confirm Screen

Examination Input Screen

Examination List Screen

Inserting/Reading/Ejecting the Cassette

This section details the procedure for inserting the cassette into the REGIUS MODEL 190.

READY Lamp
Cassette insertion OK:
   Illuminated (Blue)

Cassette insertion NG:
   Extinguished

Error occurs:
   Flashing (Blue)
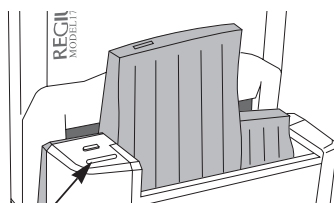
READY

READY Lamp (Blue)

1 Ensure that the message "READY" is displayed on the LCD of the REGIUS MODEL 190 and that the READY lamp is illuminated (Blue).

Align the cassette at the left edge of the cassette insertion slot and check the position of the bar code.

Do not insert the cassette into the REGIUS MODEL 190 with any memo or seal attached to the back panel.
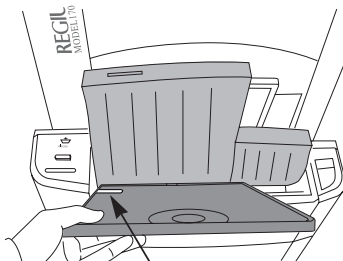
Bar code position

2 Insert the cassette so that the bar code is positioned to the left front of the cassette.
   · **The cassette will be transported into the unit automatically, then the bar code will be read.**
   · **The READY lamp is extinguished while the cassette is being fed into the unit.**
   · **Once the cassette is fully transported into the REGIUS MODEL 190, the READY lamp will again illuminate. At this point, another cassette (+1 stack) may be inserted into the cassette insertion slot.**

The next cassette to be inserted can be stacked in the cassette insertion slot. (+1 stack feature)

If the registration error message shown at right is displayed after the cassette is inserted, the cassette may not be registered. Check whether or not the cassette is registered on the CS-1/CS-2/CS-3 operation unit. If the registration error message is displayed even though the cassette is registered, check for dirt on the bar code of the cassette.

REGISTRATION ERROR
PRESS EJECT

If the cassette is removed by pushing the [eject] button once after insertion, the "READY" lamp will flash for five seconds during which time no further cassettes will be accepted.
Insert the cassette after the "READY" lamp changes from "flashing" to "Illuminated".

Before inserting the cassette, be sure to remove any paper attached to the memo clip or magnet marker attached to the back panel.
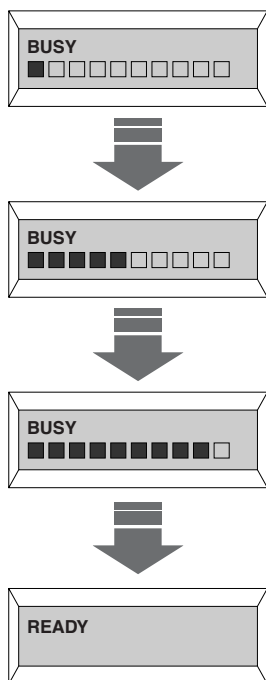
3 A "BUSY" message and a counter
"■■■ • • • " will be displayed on the LCD.

· **The counter on the LCD "■■■ • • •"**
  will increment until the full value is reached
  at which point a "READY" message will
  appear.

```
BUSY
■□□□□□□□□
```

```
BUSY
■■■■■□□□□□
```

```
BUSY
■■■■■■■■□
```

```
READY
```

Even if the READY lamp
does not illuminate due to
breakage, the next cassette
may still be inserted as long
as "READY" is displayed on
the LCD panel.

Cassette Ejection Lamp (Orange)

Ejection Shutter

Cassette Stacker

```
BUSY
REMOVE CST FRM EXIT
```
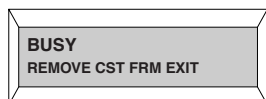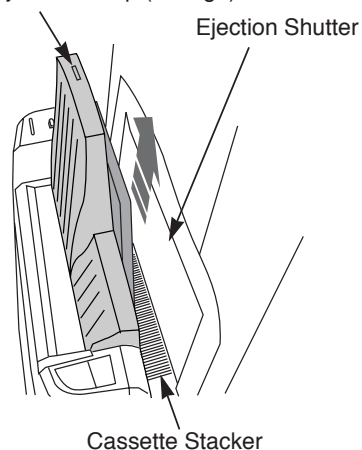
4 When the reading is completed, the image
is erased and the cassette is ejected and
held in the cassette stacker.

· **Cassettes ejected to the cassette stacker**
  may be used for X-ray exposure again.
· **The maximum capacity of the cassette**
  stacker is up to four cassettes. Once the
  maximum capacity has been reached, the
  message "BUSY REMOVE CST FROM
  EXIT" will appear on the LCD display panel.
· **After the cassette is read and ejected,**
  REGIUS MODEL 190 will automatically
  transport the next cassette into the unit if a
  cassette has been previously stacked (+1
  stack) in the cassette insertion slot.

The system has been
designed so that once four
cassettes have been
stacked, insertion of further
cassette is inhibited.

⚠ **CAUTION**

NEVER insert any obstacles in the cassette eject area.
Doing so may result in physical injuries or mechanical malfunction.
NEVER touch the eject area until the cassette is fully ejected.

⌇ Erasing the REGIUS Plate

In order to maintain image quality, the REGIUS Plate should be erased before starting examination every morning.
The cassettes mentioned below have to be erased before exposure: failure to do so may produce poor image quality.
· When the plate is cleaned.
· Cassette that has been left for a long time without using.
· Cassette that has been used for multiple exposure or high exposure dose.

Two types of ERASE MODE

There are two types of ERASE MODE on the REGIUS MODEL 190, one is ERASE MODE 1 (High-speed erase mode) and the other is ERASE MODE 2 (Low-speed erase mode). In the ERASE MODE 2, the erasing lamp (halogen lamp) is applied to the REGIUS plate for a longer time, compared to that for the ERASE MODE 1. Select the appropriate mode according to the purpose.

ERASE MODE 1: This mode is used for cassettes that have been out of use left for long time.

ERASE MODE 2: This mode is used in the following cases.
· To erase an image data from an improper X-ray exposure.
· To erase an image that does not need to be read after exposure.
· To erase the plate after it is cleaned.
· To erase an image that is produced with a multiple exposure or high exposure dose.

Switching ERASE MODE

While "READY" is displayed on the LCD panel of REGIUS MODEL 190 and the READY lamp is illuminated (blue), push the "erase" button as shown below in order to select the desired ERASE MODE.

Normal Mode

erase — Push

READY

erase — Push and hold for 3 seconds or more

ERASE MODE 2
SLOW

ERASE MODE 2
(Low-speed erase mode)

erase — Push

ERASE MODE 1
QUICK

ERASE MODE 1
(High-speed erase mode)

🔍 p.38 ERASE MODE 2
        (Low-speed erase mode)

🔍 p.37 ERASE MODE 1
        (High-speed erase mode)

ERASE MODE 1 (High-speed erase mode)

```
READY
```

LCD Panel

"erase" Button

"erase" Lamp

```
ERASE MODE 1
■■■■■■■■■■ QUICK
```

```
ERASE MODE 1
■■■■■□□□□□ QUICK
```

```
ERASE MODE 1
■□□□□□□□□□ QUICK
```

Cassette Ejection Lamp (Orange)

READY Lamp (Blue)

```
READY
```
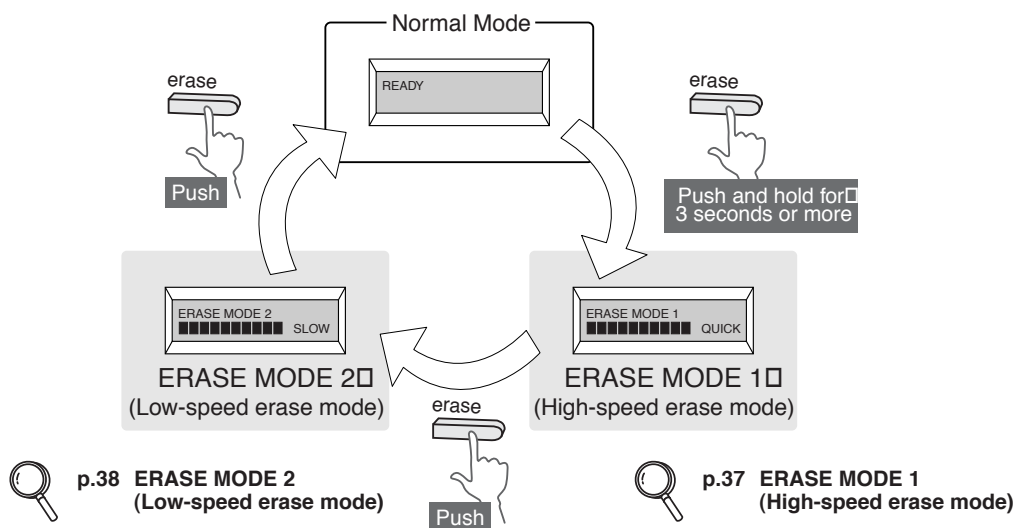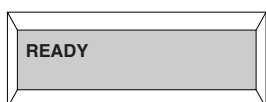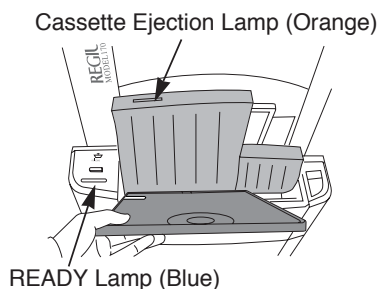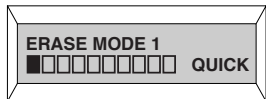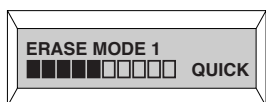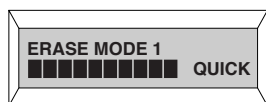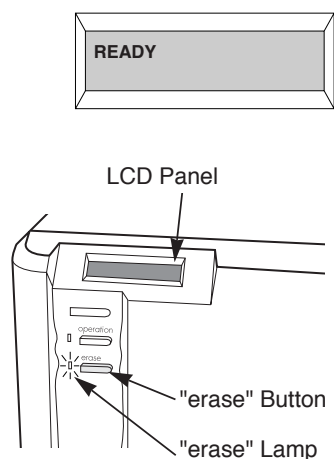
1 Ensure that "READY" is displayed on the LCD of REGIUS MODEL 190 and the READY lamp (blue) is illuminated.

2 Press the "erase" button for at least three seconds.
- **The "erase" lamp located on the left of the "erase" button will illuminate (orange) and the message "ERASE MODE 1" together with a counter "■■■ ・・・ QUICK" will appear on the LCD panel.**
- **If the "erase" button is pressed before the counter "■■■ ・・・" reaches the left end, the erase mode will change to ERASE MODE 2.**
- **Pressing the "erase" button again will show "READY" on the LCD panel, and exit the ERASE MODE.**

Be careful not to push the "operation" button accidentally instead of pushing "erase" button.

3 The cassette targeted for image erasure should be inserted into the cassette insertion slot before the counter "■■■ ・・・" reaches the left end.
- **Erasing will start. The counter "■■■ ・・・" will flash during erasure.**
- **After the READY lamp (blue) extinguishes and the cassette is fully transported into the REGIUS MODEL 190, the READY lamp (blue) will illuminate again.**
- **The next cassette to be inserted can be stacked in the cassette insertion slot . (+1 stack feature)**

Insert the cassette so that it is aligned to the left side of the cassette insertion slot.

4 The cassette after image erasure will be ejected to the cassette stacker which holds a maximum of four cassettes.
- **The cassette ejection lamp (orange) flashes a few second before the cassette is ejected; it will extinguish when the cassette is ejected completely.**
- **After the ejection shutter closes, the cassette stacked in the cassette insertion slot will be automatically transported into the unit.**
- **The cassette may be inserted continuously before the counter decrements to zero.**
- **The cassette ejected into the cassette stacker can be used again.**

5 When the erasing is completed, the counter "■■■ ・・・" starts to decrement. When it reaches the left end, "READY" will be displayed indicating that the REGIUS MODEL 190 is ready to read cassettes.
- **The "erase" lamp will extinguish.**

ERASE MODE 2 (Low-speed erase mode)
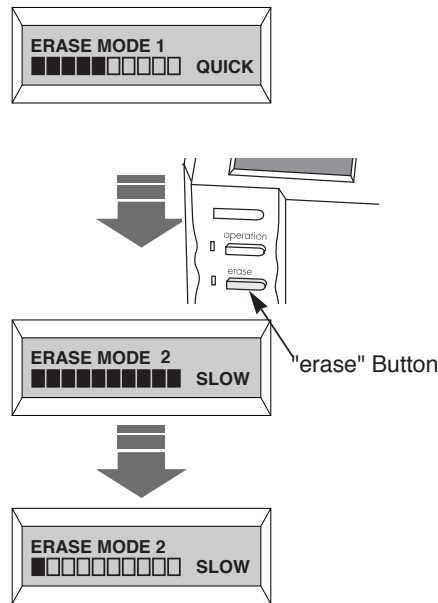
```
ERASE MODE 1
■■■■■□□□□□   QUICK
```

```
ERASE MODE  2
■■■■■■■■■■   SLOW
```
"erase" Button

```
ERASE MODE 2
■□□□□□□□□□   SLOW
```
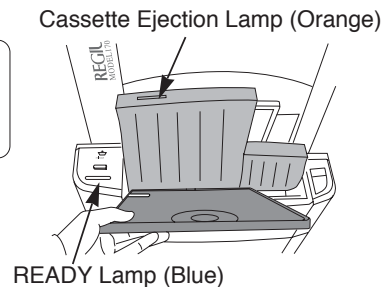
1 Depress the "erase" button while the message "ERASE MODE 1" is displayed on the LCD panel.
 ・ **The message "ERASE MODE 2" together with a counter "■■■ ・・・ SLOW" will appear on the LCD panel.**
 ・ **If the "erase" button is depressed again, the message "READY" will appear on the LCD panel, and the erase mode shut downed, indicating that the REGIUS MODEL 190 is ready to read cassettes.**

⚠

Insert the cassette so that it is aligned to the left side of the cassette insertion slot.

Cassette Ejection Lamp (Orange)

READY Lamp (Blue)

2 The cassette targeted for image erasure should be inserted into the cassette insertion slot before the counter "■■■・・・" on the LCD display panel decrements to zero.
 ・ **The cassette will be erased. While erasing, the counter "■■■ ・・・ " will flash.**
 ・ **After the READY lamp (blue) extinguishes and the cassette is fully transported into the REGIUS MODEL 190, the READY lamp (blue) will illuminate again.**
 ・ **The next cassette to be inserted can be stacked in the cassette insertion slot . (+1 stack feature)**

3 The cassette after image erasure will be ejected to the cassette stacker which holds a maximum of four cassettes.
 ・ **The cassette ejection lamp (orange) flashes a few second before the cassette is ejected; it will extinguish when the cassette is ejected completely.**
 ・ **The cassette ejected into the cassette stacker can be used again.**

```
READY
```

4 When the erasing is completed, the counter "■■■ ・・・ " starts to decrement. When it decrements to zero, "READY" will be displayed indicating that the REGIUS MODEL 190 is ready to read cassettes.
 ・ **The "erase" lamp will extinguish.**
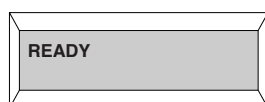
Daily Shut Down (Sleep)
(When connected to CS-1 or CS-3)

REGIUS MODEL 190 is automatically shut downed when the CS-1 or CS-3 is shut downed.

The following is a description of the procedure for turning OFF the REGIUS MODEL 190 through the CS-1 or CS-3. For more details, refer to the CS-1 or CS-3 Operation Manual.

[KONICA MINOLTA] Button

1 Touch the "KONICA MINOLTA" button.
- **This will produce display of the system menu.**

The illustration at right shows the screen display when the "Examination Search" screen has been set as the initial screen.

[Shutdown] Button   [Back] Button

2 Touch the "Shutdown" button of the System Menu.
- **Confirmation Message will be displayed.**

3 Touch the "YES" button.
- **The CS-1 or CS-3 will be shut downed.**
- **To abort the system shut down process, touch the "NO" button and then the "RETURN" button on the system menu. This will result in abortion of the shut down process and return to the examination search screen or the examination list screen.**
- **Upon shut down of the CS-1 or CS-3, the sleep mode will be engaged.**

In cases where the image data is being transmitted to externally connected devices, a message will be displayed. The system will be shut down upon completion of data transmission. If there is any unsent image data, at the time when the system is shut down, such data will be transmitted next time the CS-1 or CS-3 starts.

It is usually not necessary to switch OFF the power breaker when shutting down the unit. The power breaker should be switched OFF only when the unit is not to be used for an extended period.

p.41 Power Off

Sleep

Daily Shut Down (Sleep)
(When connected to CS-2)

REGIUS MODEL 190 is automatically shut downed when the CS-2 is shut downed.

The following is a description of the procedure for turning OFF the REGIUS MODEL 190 through the CS-2. For more details, refer to the CS-2 Operation Manual.

[KONICA MINOLTA] Button

The illustration at left shows the screen display when the "Image Confirm" screen has been set as the initial screen.

1 Touch the "KONICA MINOLTA" button.

· **This will produce display of the system menu.**

[Shutdown] Button   [Back] Button

2 Touch the "Shutdown" button of the System Menu.

· **Confirmation Message will be displayed.**

Are you sure to shut down this system?

YES   NO

3 Touch the "YES" button.

· **The CS-2 will be shut downed.**
· **To abort the system shut down process, touch the "NO" button and then the "Back" button on the system menu. This will result in abortion of the shut down process and return to the initial screen.**
· **Upon shut down of the CS-2, the sleep mode will be engaged.**

It is usually not necessary to switch OFF the power breaker when shutting down the unit. The power breaker should be switched OFF only when the unit is not to be used for an extended period.

In cases where the image data is being transmitted to externally connected devices, a message will be displayed. The system will be shut down upon completion of data transmission. If there is any unsent image data, at the time when the system is shut down, such data will be transmitted next time the CS-2 starts.

p.41 Power Off

Power OFF

The process for switching off the power is detailed below.
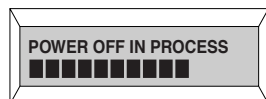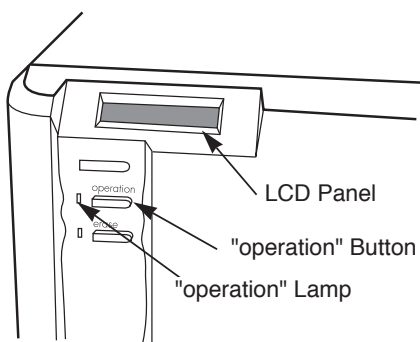
1 Ensure that the REGIUS MODEL 190 is in Sleep Mode or the message "READY" appears on the LCD panel. Then depress the "operation" button.
(Approx. for five seconds)
- **"POWER OFF AFT 5" appears on the LCD panel, then the counter starts counting down from five to one. (Approx. for five seconds)**
- **If the operation switch is released before the counter reaches one, the counter stops counting down, and resumes "READY" on the LCD panel again.**

LCD Panel

"operation" Button

"operation" Lamp

POWER OFF AFT 5

It is not usually necessary to switch OFF the power breaker when shut downing the unit. The power breaker should be switched OFF only when the unit is not to be used for an extended period.

POWER OFF IN PROCESS ██████████

2 The message "**POWER OFF IN PROCESS**" together with a counter "■■■ ・・・" will appear on the LCD panel. (For approx. 20 seconds.)
- **The counter "■■■ ・・・" starts to decrement. (For approx. 10 seconds.)**
- **The "operation" lamp will flash.**

3 The LCD panel extinguishes.
- **After the LCD panel extinguishes, the "operation" lamp keeps flashing for approx. 10 seconds, then extinguishes.**

4 Power off the power breaker of REGIUS MODEL 190.

Definition of REGIUS MODEL 190 status
1. SLEEP
- Termination of daily operation.
2. operation OFF
- Turning off the power breaker
- Suspended use of the device for an extended period
3. Power Breaker OFF
- Suspended use of the device for an extended period.
- Unplugging of the power cable from outlet.
- For service purpose (maintenance service, etc.)
- Emergency stop of operation at the time of accident such as smoke/fire generation or being caught in the device.
* Except for the case of Emergency Stop, "Power Breaker OFF" should be implemented only after terminating the operation by pressing the [operation] button. Otherwise, it may lead to damage to the device, generating risk that the device may not start up in the normal way.

4

Troubleshooting

This chapter details procedures to be followed when troubles occur in the REGIUS MODEL 190.

Error Messages and Remedies

Two types of error messages will be displayed on the LCD; error messages with error codes or without error codes. Error messages without error codes are "warning errors".
When the same error repeats even after remedial action, contact your Technical Representative.

Troubleshooting for errors with error codes

No.	REGIUS MODEL 190 STATUS	ERROR MESSAGE	REMEDY
1	Operating Initializing	ERROR [XXXXX] REMOVE REMAINING CST	Cassette jam has occurred. Resolve by following the procedure detailed in "Handling Cassette Jams". **p.48 Handling Cassette Jams**
2	Operating	ERROR [04906] BAD CST REMOVE REMAINING CST	The REGIUS Plate in the cassette may not be firmly adhered to the back panel. If this error occurs, part of the imag data may be damaged. Resolve by following the procedure detailed in "Handling Cassette Jams". **p.48 Handling Cassette Jams**
3		Error [04908]	Only the front panel is ejected; the back panel is left in the main unit. Resolve by following the procedure detailed in "Handling Cassette Jams". **p.48 Handling Cassette Jams**
4	Operating Initializing	ERROR [XXXXX] PLS RESTART	1. Open and close the front cover. Most of errors can be restored with this simple method. 2. If the above procedures fail to restore the REGIUS MODEL 190: Push the "operation" button to turn OFF and push it again to restart the REGIUS MODEL 190. 3. If the above procedure (2) fails to restore the REGIUS MODEL 190: Turn OFF/ON the power breaker, then push the "operation" button to restart the REGIUS MODEL 190. Remedy "3." (Breaker ON/OFF) should be carried out only in cases where neither "1." nor "2." are effective in restoring the REGIUS MODEL 190. 4. In cases where the REGIUS MODEL 190 cannot be restored by any of the procedure described above (3): Contact your Technical Representative.

Handling errors with error codes

No.	REGIUS MODEL 190 STATUS	ERROR MESSAGE	REMEDY
5	**Operating** **Initializing**	ERROR [04904] BAD LAMP CALL SVC	The error with this error code will be displayed when both erasing lamps are broken. Once the error occurs, the REGIUS MODEL 190 cannot be operated. If one of the erasing lamps is broken, the message "READY" together with "BAD LAMP CALL SVC" is displayed on the LCD panel. This status, under which the erase time becomes longer, will not effect normal operation of REGIUS MODEL 190. As a precaution, contact your Technical Representative.

6	**Initializing**	Network Error [24000]
		MAC : XXXXXXXXXXXX
		Network Error [24000]
		IP : XXX.XXX.XXX.XXX
			When this error occurs while initializing, both MAC address and IP address are displayed alternately on the LCD panel. In this case, follow the procedure below.
			1. Ensure that the ethernet cable is connected to the REGIUS MODEL 190 properly. If the cable is not connected, connect it. Then the REGIUS MODEL 190 will start up automatically.
			2. Ensure that the JM is operating and the ethernet cable is connected to it.
			  a) If the JM is not operating:
			    Start up JM after checking Ethernet cable connection: REGIUS MODEL 190 will start up automatically. Finally, restart the REGIUS Console.
			  b) If the ethernet cable is not connected to JM:
			    Connect it to the JM. At this point, if the JM is operating, the REGIUS MODEL 190 will start up automatically. Finally, restart the REGIUS Console.
			
			There are two types of JM; One is built in the CS-1/CS-2/CS-3, the other is the external.

Troubleshooting for errors without error code

No.	REGIUS MODEL 190 STATUS	ERROR MESSAGE	REMEDY
1	Operating	DOOR OPEN CST JAM? CLOSE DOOR	The front cover is open. Close the front cover.
2		READY BAD LAMP CALL SVC	The erasing lamp is broken. Contact your Service representative.
3		READY ALIGN CST TO LEFT	Align the cassette to be inserted to the left side.
4		ABNORMAL INSERTION Push EJECT	The cassette has been inserted abnormally. Push the "eject" switch to remove the cassette.
5		REGISTRATION ERROR PRESS EJECT	Push the "eject" button to remove the cassette. Ensure that registration of the cassette has been completed beforehand, then insert the cassette.
6		NO REGISTRATION SELECT BODY PART	The cassette is not registered in the console. Register the cassette in the console.
7		INCORRECT READ CND PRESS EJECT	Invalid exam tag is registered for the cassette inserted. Register a correct exam tag, and reinsert the cassette.
8	Processing	BUSY CLOSE EJECTION SLOT SHUTTER	The ejection slot shutter is open. Resolve the cause and close the shutter.
9		BUSY ALIGN CST TO LEFT	Align the cassette to be inserted to the left side.
10		BUSY REMOVE USED CASSETTE	Remove the cassette from the cassette stacker.

No.	REGIUS MODEL 190 STATUS	ERROR MESSAGE	REMEDY
11	ERASE MODE "x" NOTE	ERASE MODE "x" ALIGN CST TO LEFT	Status: ERASE MODE "x" Align the cassette to be inserted to the left side.
12		ERASE MODE "x" BAD LAMP ALIGN CST TO LEFT	
13		ERASE MODE "x" IMPROPER INSERTION	Status: ERASE MODE "x" The cassette has been inserted abnormally. Push the "eject" button to remove the cassette.
14		ERASE MODE "x" BAD LAMP IMPROPER INSERTION	
15		ERASE MODE "x" CLOSE EJECT SLOT SHUTTER	Status: ERASE MODE "x" The ejection slot shutter is open. Resolve the cause and close the shutter.
16		ERASE MODE "x" CLOSE EJECT SLOT SHUTTER	
17		ERASE MODE "x" REMOVE USED CASSETTE	Status: ERASE MODE "x" Remove the cassette from the cassette stacker.
18		ERASE MODE "x" BAD LAMP REMOVE USED CASSETTE	
19		ERASE MODE "x" BAR CODE ERROR	Status: ERASE MODE "x" Insert the cassette again to be erased.
20		ERASE MODE "x" BAD LAMP BAR CODE ERROR	

NOTE:

The number "x" suffixed to "ERASE MODE" in the above list shows the erase mode number.

If "x" is "1" : ERASE MODE 1 QUICK (High-speed erase mode)

If "x" is "2" : ERASE MODE 2 SLOW (Low-speed erase mode)

p.36 Erasing the REGIUS Plate

If the message "BAD LAMP CALL SVC" is displayed on the LCD panel, one of the two erasing lamps is broken. This status, under which the erase time becomes longer, will not effect normal operation of REGIUS MODEL 190. When both lamps are broken, however, operation of REGIUS MODEL 190 will not be possible. As a precaution, if the message "BAD LAMP CALL SVC" is displayed, contact your Technical Representative.

Handling Cassette Jams

This section details the procedure to be followed upon occurrence of a cassette jam. Do not use the cassette that caused the jam. Please contact your Technical Representative.

Cassette Jam
This term describes a situation where the cassette is not ejected and is left in the REGIUS MODEL 190.

Types of Cassette Jams

There are three kinds of Cassette Jam.

A
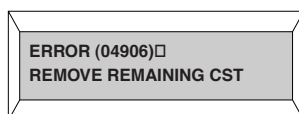
```
ERROR (04906)
REMOVE REMAINING CST
```

This may occur while operating the REGIUS MODEL 190.

B

```
ERROR (04908)
REMOVE REMAINING CST
```
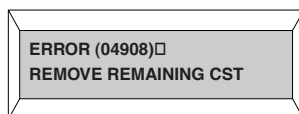
This may occur while operating the REGIUS MODEL 190.
Only the front panel is ejected; the back panel is left in the device.

C

```
ERROR (XXXXX)
REMOVE REMAINING CST
```
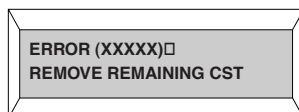
This may occur while operating or initializing the REGIUS MODEL 190.

Handling Cassette Jams
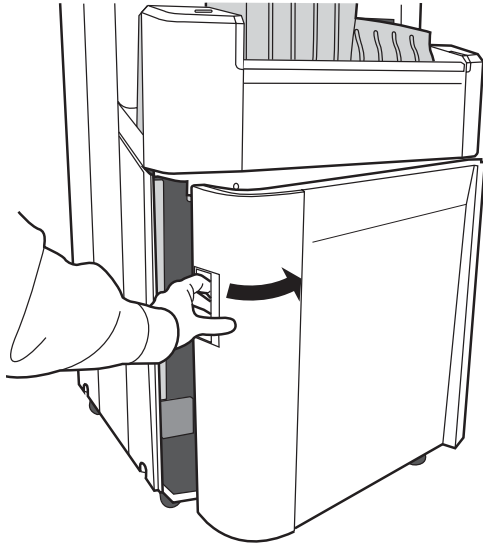
1 Open the front door.
- **Opening the front cover automatically turns off the power of the drive unit.**
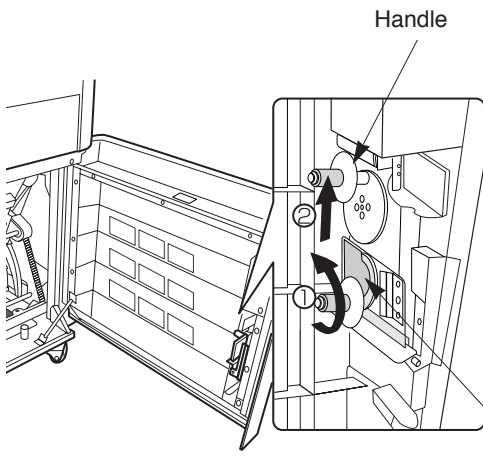
Handle

2 Pull out the handle from the handle holder located on the inside wall of the front door.

Handle Holder

3 Attach the handle as shown in the figure at left.

A warning label is affixed here. Do not place objects on the shelf located on the inside of the front door.

Be sure to return the handle to the handle holder completely. Otherwise, the front door cannot be fully closed, this may disable normal operation of the REGIUS MODEL 190.

A label detailing the procedure for handling a cassette jam is located on the inside wall of the front door.

When turning the handle, be careful that the handle does not become detached. This may injure a hand by hitting the interior of the unit.

Transport Unit

4 Turn the handle clockwise to move the transport unit toward you until it comes to a full stop.
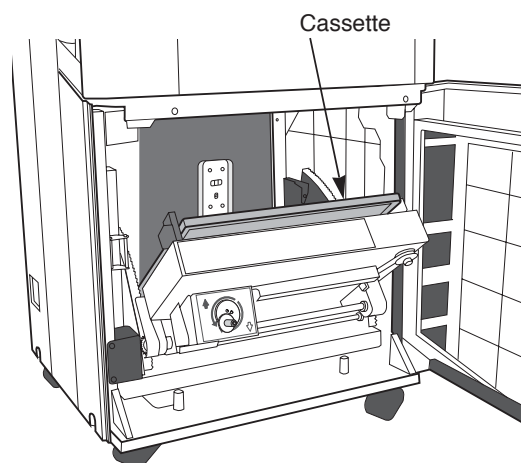
Cassette

5 Remove the jammed cassette according to the status of the cassette that remains in the device.

A. When the cassette is on the transport unit with its back and front panel attached.

➡ Remove the cassette being careful not to separate the front panel and back panel because the lock between them may be unlocked.

If the cassette is jammed at the position where it is not possible to be removed, contact your Technical Representative.

(a)

(b)

(c)

Back panel   Front panel

Cassette Magnetizing Plate   Back Panel
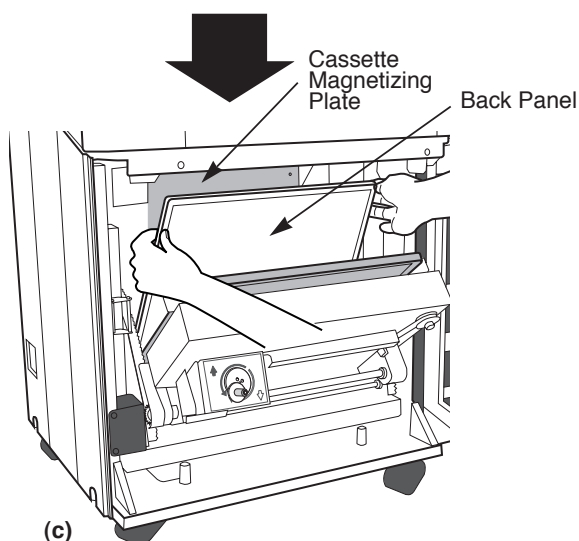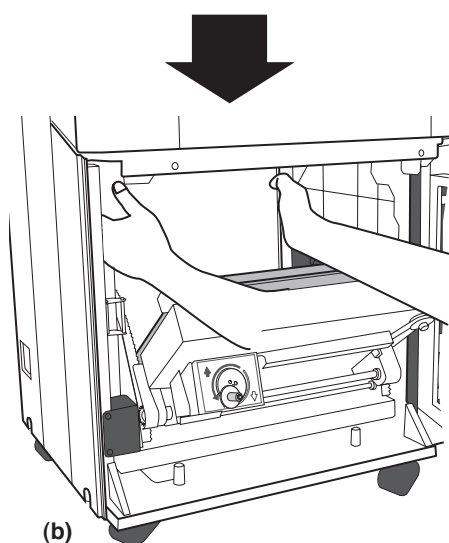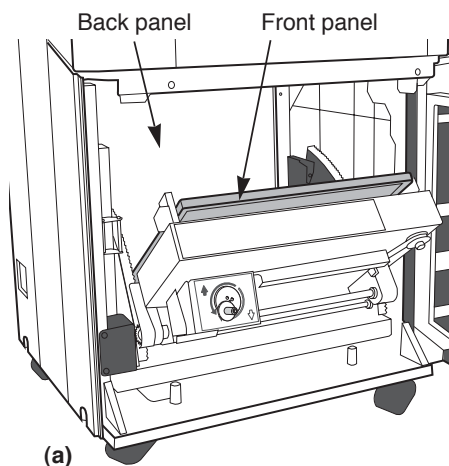
B. **The back panel and front panel are separated and the back panel is attached to the cassette magnetizing plate.**
- The front panel is on the transport unit.
- ➡ Remove the back panel from the cassette magnetizing plate and return it to the front panel, then remove the cassette being careful not to separate them. (a) (b) (c)

- The front panel is ejected to the cassette stacker.
- ➡ Place the ejected front panel on the transport unit. Remove the back panel from the cassette magnetizing plate and return it to the front panel. Finally, engage the open/close lock to remove the cassette.

C. **The back panel has dropped to the lower area of the device.**
- The front panel is on the transport unit.
- ➡ Return the back panel to the front panel, being careful not to make contact with the device, then remove the cassette being careful not to separate them.

- The front panel is ejected to the cassette stacker.
- ➡ Place the ejected front panel on the transport unit, then return the back panel to the front panel. Finally, engage the open/close lock to remove the cassette.

If the cassette is jammed at the position where it is not possible to be removed, contact your Technical Representative.

When removing the REGIUS Plate, be careful not to damage the plate by making contact with the interior of the reader.

When pulling off a small size REGIUS Plate, be careful not to drop it.

Be careful to avoid burns. The erasing lamp area may reach 170℃. If you need to put your hands into the main unit in order to handle cassette jams, be careful not to touch the erasing lamp area located on the upper area of the unit.

Removing the back panel directly from the main unit may result in damaging to the internal parts.

6 Turn the handle counterclockwise and return the transport unit until it reaches the home position mark.
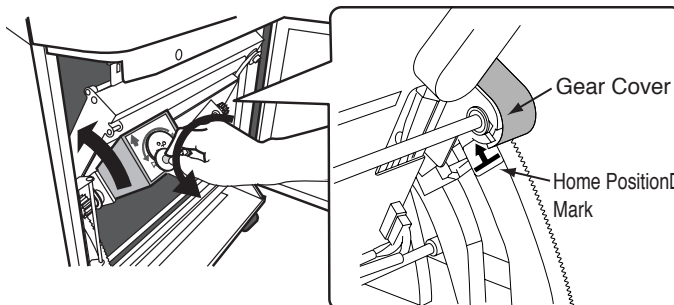
The transport unit needs to be returned to the position indicated by the home position mark.

Gear Cover

Home Position Mark

**7** Return the handle to the handle holder located on the inside of the front door.

The unit is designed so that the front door cannot be closed unless the handle is returned to its correct position.
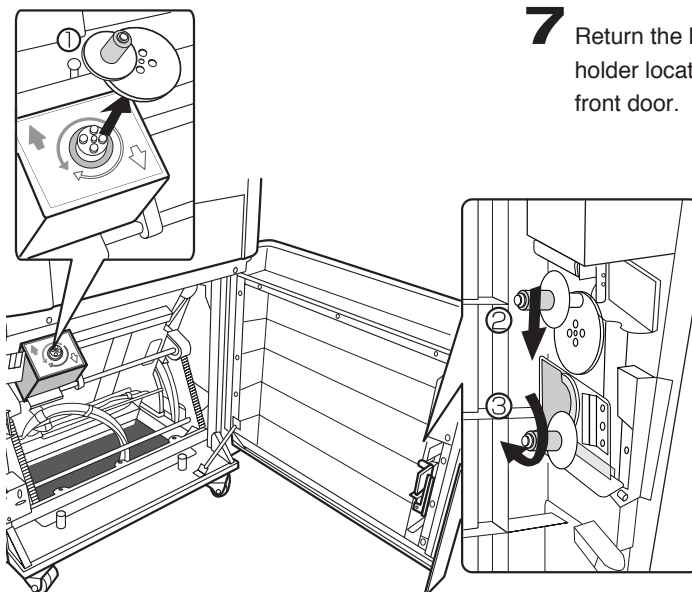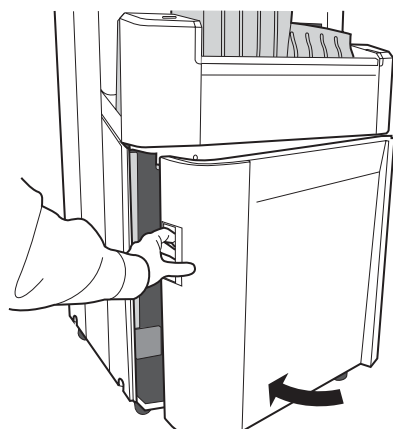
8 Close the front door.
- **Initialization automatically starts upon closure of the front door, followed by the message "INITIALIZING"**
- **Upon completion of initialization, "READY" will be shown on the LCD panel and the READY lamp lights.**
- **The REGIUS MODEL 190 is now ready for use.**

INITIALIZING
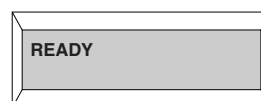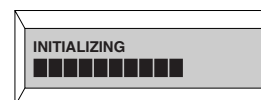
READY

Removal of Foreign Objects from Cassette Insertion Slot

This section details the procedure to be followed in the event of a foreign object being dropped into the cassette insertion slot.
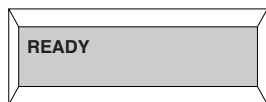
READY	**1** Ensure that "READY" is displayed on the LCD panel.
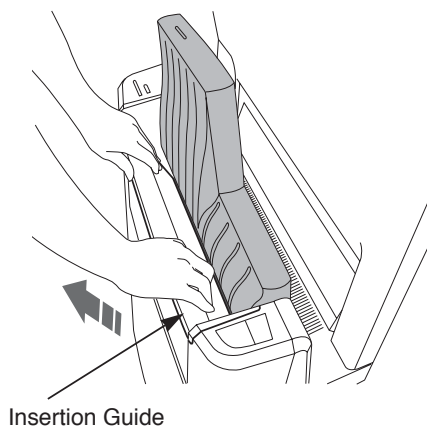
2 Using both hands, pull up the insertion guide of the cassette insertion slot along the arrow..
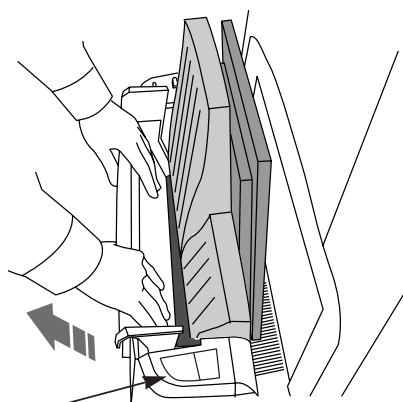
Insertion Guide

3 Raising of the insertion guide will result in automatic power shutdown.

This label, affixed to the cassette insertion slot, illustrates the procedure for removal of foreign objects.

DOOR OPEN. CST JAM? CLOSE DOOR	**4** Ensure that a message "DOOR OPEN. CST JAM? CLOSE DOOR" is shown on the LCD panel.
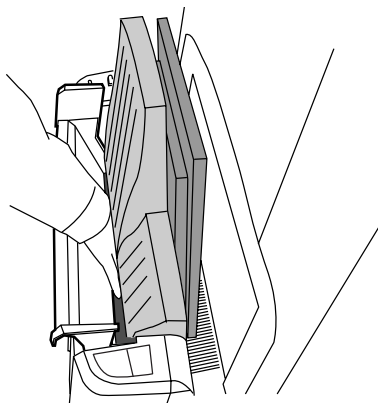
5 Remove the foreign object from the cassette insertion slot by hand.

Be careful not to allow the insertion guide to fall onto the original position.

If the foreign objects are difficult to remove by hand, discontinue operation of the REGIUS MODEL 190 and contact your Technical Representative.
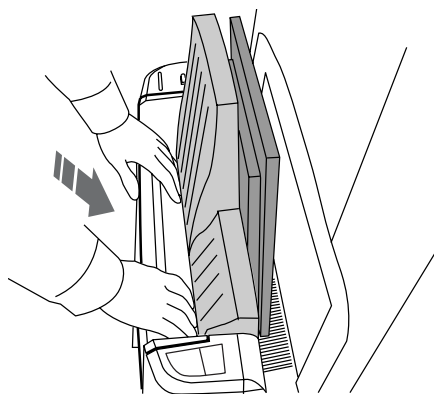
6 Return the insertion guide to its original position.

- **Initialization will automatically start.**
- **The message "INITIALIZING" together with a counter "■■■ · · · " will appear on the LCD panel. Upon completion of initialization, the message "READY" will be shown on the LCD panel.**
- **The REGIUS MODEL 190 is now ready for use.**

```
INITIALIZING...
■■■□□□□□□□
```

```
READY
```
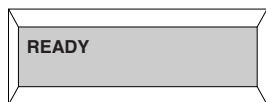
Troubleshooting for Cassette

Carry out the troubleshooting for the REGIUS Plate following the description below.

Action against the Trouble

p.59 Cleaning the REGIUS Plate

When the surface of REGIUS Plate is damaged seriously:
When the protective film covering the fluorescent surface of the REGIUS Plate is damaged or torn, immediately stop using the plate and replace it with new one.

When the REGIUS Plate is deformed due to fall, etc. :
A deformed REGIUS Plate may cause trouble in the transport unit of the REGIUS MODEL 190. Immediately stop using the plate and replace it with new one.

When at least one notch is damaged:
A damaged notch may cause trouble in the transport unit of the REGIUS MODEL 190. Immediately stop using the plate and replace it with new one.

When the memo clip on the back panel is damaged.
The clip may be repaired if the damage is not serious.

When artifact is found on the image.
Check if there are any scratches, dusts or foreign objects, then clean the REGIUS Plate. After cleaning, operate again to check if the same artifact occurs on the image. If the same artifact occurs repeatedly, immediately stop using the plate and replace it with new one.

If the REGIUS Plate needs to be repaired or replaced, contact your Technical Representative.

5

Care & Maintenance

This chapter details the procedure for care and maintenance of the REGIUS MODEL 190.

Care & Maintenance

In order to ensure optimum performance, care and maintenance should be carried out following the procedures detailed below.

Before cleaning, be sure to power off the power breaker and disconnect the power cable from the power outlet.

p.41 Power Off

Do not clean the cassette stacker using a cloth dampened with volatile liquids like a thinner or alcohol. This may damage the stacker.

Do not clean the LCD with a damp cloth. If water gets into the LCD panel, a breakdown may occur.

Be careful not to damage the main unit when using a vacuum cleaner.

Cassette Stacker
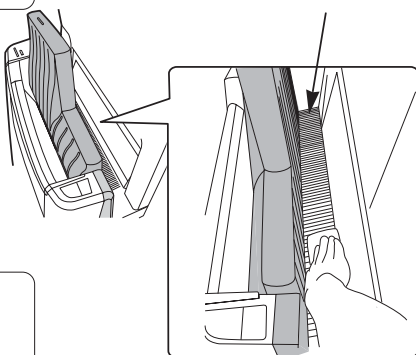
LCD Panel
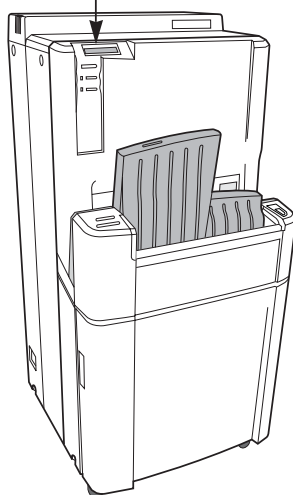
Exhaust Outlets
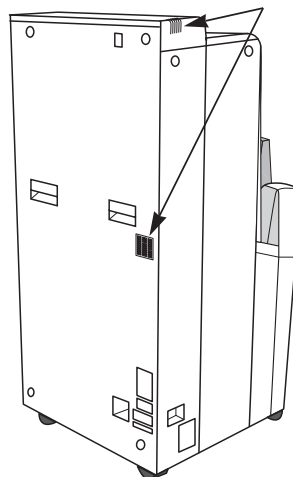
1. **Cleaning of the Cassette Stacker**
   Clean the cassette stacker with a dry soft cloth. The stacker should always be kept clean.

2. **Cleaning of the Exterior**
   Gently wipe dust or stains from the main unit with a dry cloth.
   Stubborn stains should be wiped with a damp cloth then with a dry cloth.

3. **Cleaning of the Exhaust outlet**
   Remove dust on the rear side of the main unit or in the exhaust outlet with a vacuum.

4. Cleaning the REGIUS Plate

Dust may accumulate on the fluorescent surface of the REGIUS Plate, and may result in a defective image. To avoid such trouble, try to keep the cassette clean, and clean the REGIUS Plate once a week.

Cleaning should be carried out on a level surface where it is not exposed to the direct light. Take care to avoid damage to either the cassette or the REGIUS Plate.
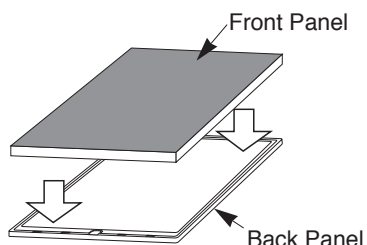
Cleaning procedure of the REGIUS Plate is detailed below.
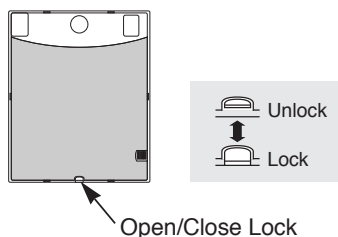
1 Disengage the open/close lock on the back panel of the cassette.

Unlock
Lock

Open/Close Lock
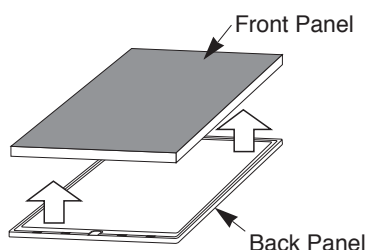
2 Lift and reverse the whole cassette and remove the front panel.

Front Panel

Back Panel

Put the cassette on a flat surface with the back panel side down, and lift the front panel, keeping it level.

3 Gently wipe the REGIUS Plate with a dry unwoven cloth. Use a blower to remove the fiber dust.

- **A cloth moistened with a little anhydrous ethyl alcohol can be used when wiping a stubborn stain. In this case, be careful not to apply an excessive amount of anhydrous ethyl alcohol to the cloth.**
- **Do not use a cloth moistened with water.**

Excessive force may result in scratching or deforming of the plate.

Anhydrous ethyl alcohol is a chemical agent. Be sure to comply with safety regulations of the chemical manufacturer.

4 Replace the front panel, lift and reverse the whole cassette and engage the open/close lock.

Front Panel

Back Panel

Unlock
Lock

Be sure to erase the REGIUS Plate after cleaning it.
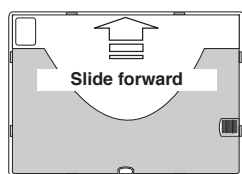
For Mammography Cassettes
Before engaging the open/close lock, be sure to slide the back panel forward until it makes contact with the innermost edge of the front panel.

Slide forward

Open/Close Lock

Care & Maintenance Schedule

> Following maintenance cycle is for reference only; it may differ depending on usage.

Maintenance by User

Frequency Maintenance Task	Weekly	Monthly	Every 6 months.	Refer to
Cleaning of the Cassette Stacker	●			p.58
Cleaning of the REGIUS Plate	●			p.59
Cleaning of the Exterior		●		p.58
Cleaning of the Exhaust outlet			●	p.58

Other Maintenance by Qualified Personnel Only

Frequency Maintenance Task	Every 6 months.	Every 12 months.
Cleaning the Roller at Insertion & Ejection Section with Wet Cloth	●	
Cleaning of the cassette magnetizing plate	●	
Lubrication to the LM guide		●
Greasing the worm wheel of transport unit		●
Lubrication of the cassette lock open/close shaft holder.		●
Cleaning the filter for power supply fan.		●
Replacement of the eraseing lamp	Approx. 10,000 shots	
Replacement of the REGIUS Plate	When image quality deteriorates.	

Erasing Lamp
Used for erasing the image data on the REGIUS Plate.

Specifications

This chapter details the specifications of the
REGIUS MODEL 190.

Device Type	DIRECT DIGITIZER DD-941
Model Name	DIRECT DIGITIZER REGIUS MODEL 190
CODE No.	0676
Safety Standard	IEC60601-1, IEC60825
Exposure size (note 1)	Regular : 14"X17" / 14"X14" / 11"X14" / 10"X12" / 8"X10" / 24X30cm / 18X24cm Mammography * : 24X30cm / 18X24cm Pantomography : 15X30cm
Sampling Pitch (note 2)	three types (43.75μm, 87.5μm and 175μm)
Maximum Resolution	7080X9480 pixels (for PCM, 14"X17")
Digital Gradation Level	4096 steps (12bits)
Cycle Time	90 sh / hr (14"X14" / 175μm)
Cassette Feed/Load Time (note 3)	approx. 40sec. (14"X14" / 175μm)
Slots	Insertion X1 (+1 stack) Exit X1 (4 cassettes in stack)
Dimensions	580(W)X580(D)X1230(H) mm
Weight	approx. 170kg (excluding the cassette)
Power Source	AC100 ~ 240V ± 10% (50/60Hz), 1.1kW
Heat Generated	Approx. 1300kJ max. (approx. 310kcal)
Operating Condition	15 ~ 30℃ / 35 ~ 80RH% (no condensation)
Storage and Transportation Condition	−10 ~ 40℃ / 10 ~ 95RH% (no condensation)
Noise Level	60 dB or less
Classification	Class II (510K)
Electromagnetic Conformity	EMC Domestic Voluntary Control for medical use has been declared. (IEC06061-1-2, 2001)
Accessories	Power Cable, Operation Manual
Options	REGIUS Cassette, REGIUS Plate, REGIUS Console, JM, JM-BOX

note 1 : * ; exept the USA
note 2 : 43.75μm ; optional
note 3 : Cassette Feed / Load Time ; Time required between cassette insertion and cassette exit.

The above specifications are subject to change without notice due to continual improvement.

Appendix

LCD list is described in this Appendix.

LCD Display

Messages to be displayed on the LCD panel are described below.

LCD
Liquid Crystal Display

LCD in Normal Operation

No.	Status of REGIUS MODEL 190	LCD Display	Refer to
1	Power OFF or Sleep	No Display	p.39~41
2	Initializing	INITIALIZING... ■■■■■□□□□□	p.31
3	Preparing for power OFF	PREPARING POWER OFF ■■■■■□□□□□	p.39~41
4	Power OFF in process	POWER OFF IN PROCESS ■■■■■□□□□□	
5	Operation Ready	READY	p.31,34~38
6	Processing	BUSY ■□□□□□□□□□	p.35
7	ERASE MODE1 (High Speed Erase Mode)	ERASE MODE 1 ■■■■■■■■■■ QUICK	p.36~38
8	ERASE MODE 2 (Low Speed Erase Mode)	ERASE MODE 2 ■■■■■■■■■■ SLOW	p.36, 38

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KONICA MINOLTA

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